ENGINEERING NEWS-RECORD

Chicago bets on expressways p.34

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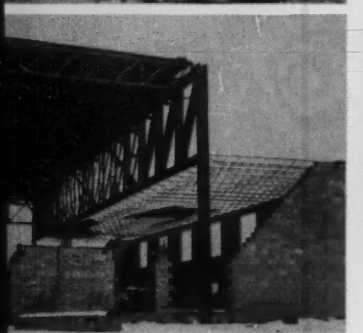

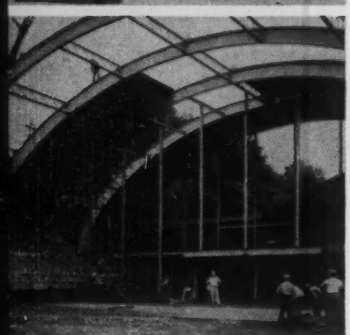

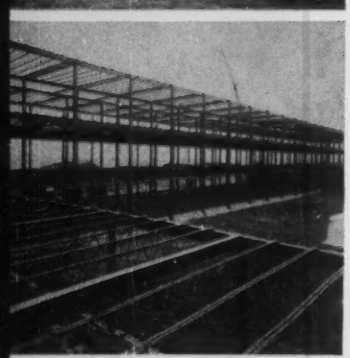

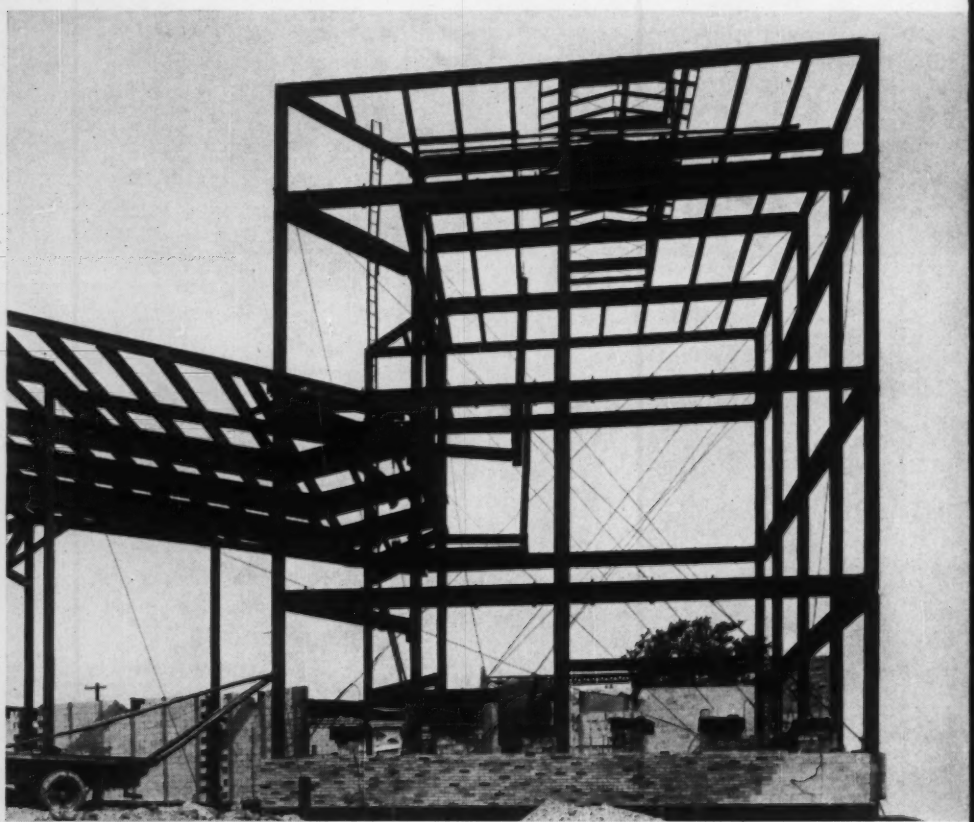

Most anyone can "put up steel" for a badly-needed school—and often does! But the difference between well-fabricated, well-timed, guaranteed PDM steel construction and lesser kinds is the difference between satisfaction and regret for all concerned. With structural steel fabricating plants in Baltimore, Pittsburgh, Des Moines, Clive, Iowa, and Fresno and Santa Clara, Calif., plus skilled field supervision and top craftsmanship in erection, Pittsburgh-Des Moines provides *the right start* for school projects of any size and complexity. For the first dividend of satisfaction on your new-school investment, trust the steel to PDM! *Let us consult with you.*

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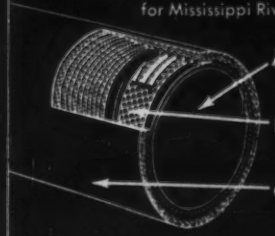
Dredging up 57,481,000 yards of river bottom in 8 seasons— with the hose still in good shape—was the best service these Mississippi River dredge operators had ever gotten. And they got it from special 38-inch Sand Suction Hose recommended by the G.T.M.—Goodyear Technical Man. This long, trouble-free operation was a real time- and money-saver, too. For every replacement of the hose-link between the dredge ladder and the suction line takes a full crew's efforts for 3 days. More important, the dredge is out of action all that time. So it's easy to see why this dredge operator has stayed with the G.T.M.'s longer-lasting hose.

GOODYEAR INDUSTRIAL PRODUCTS GTM-Specified

Special 38" Sand Suction Hose for Mississippi River dredging



A Tube of super-tough stock to withstand razor-sharp wet sand

B Reinforcements of heavy wrapped fabric plies plus high-strength spiraled wire

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16 Working Days

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One of the speediest sewage treatment plant projects ever undertaken in the Southwest was completed in 16 working days near Phoenix, Arizona. Capacity of plant is rated at 5 mgd. It has a 700,000 gallon digester.

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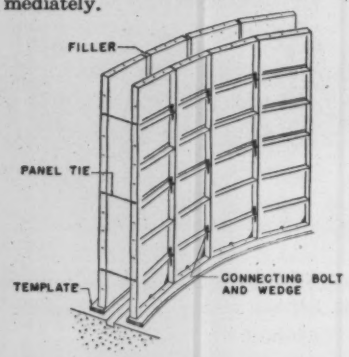

Forms were contracted for on a rental basis with an option to purchase. Later, Antrim decided that the forms were so well adapted to his work that he purchased 14,000 square feet of the panels.

Folder giving the complete Antrim story sent FREE upon request.

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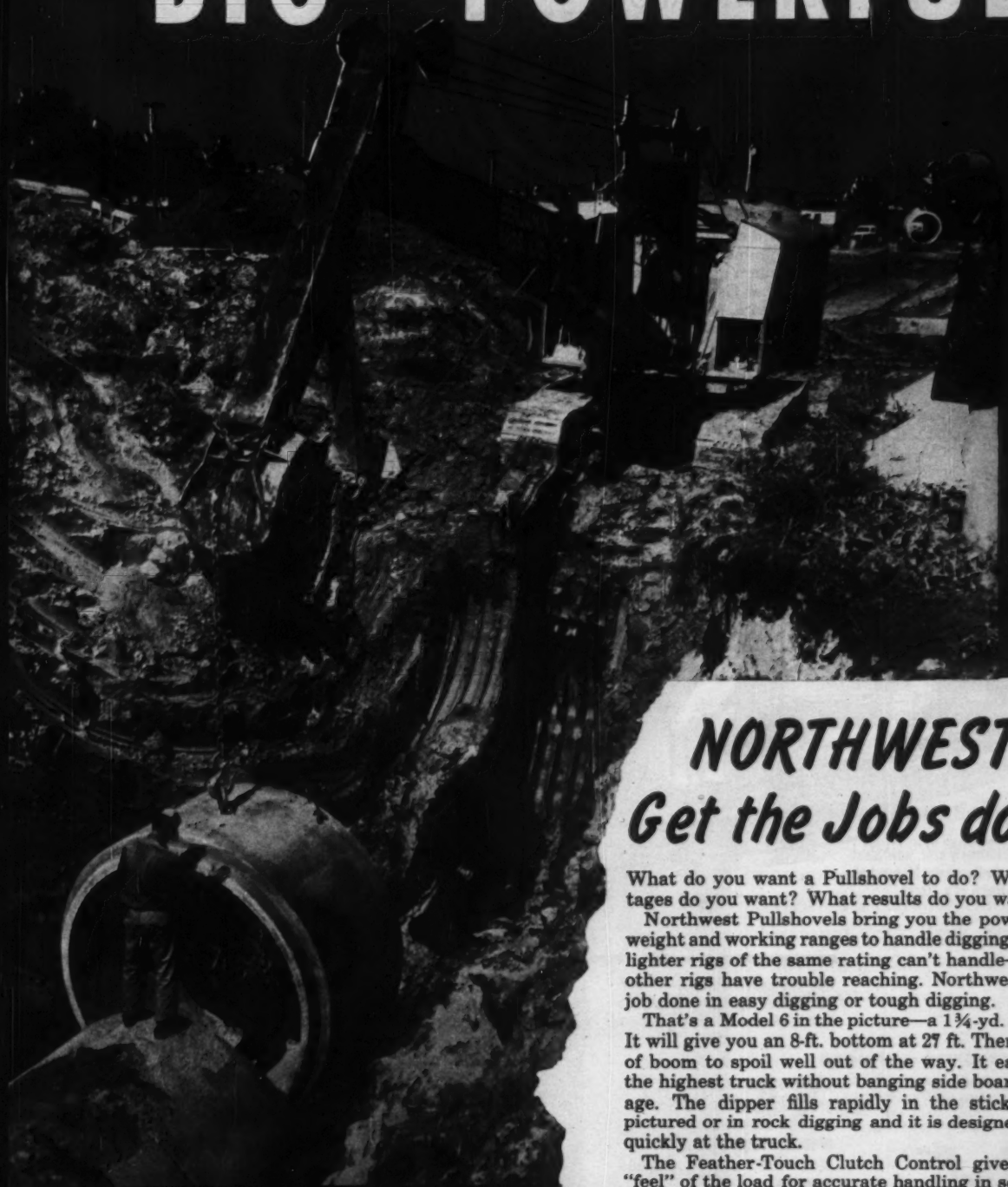

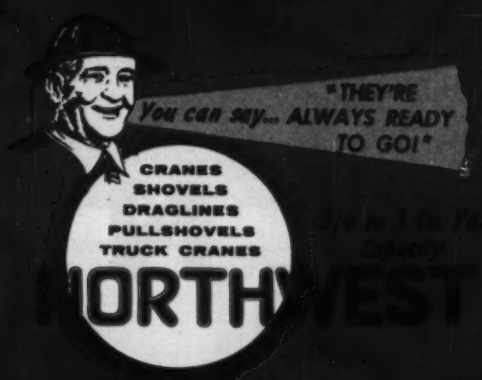

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Northwest Pullshovels bring you the power and the weight and working ranges to handle digging that other, lighter rigs of the same rating can't handle—at depths other rigs have trouble reaching. Northwests get the job done in easy digging or tough digging.

That's a Model 6 in the picture—a 1¾-yd. Pullshovel. It will give you an 8-ft. bottom at 27 ft. There is plenty of boom to spoil well out of the way. It easily clears the highest truck without banging side boards or spillage. The dipper fills rapidly in the sticky "going" pictured or in rock digging and it is designed to dump quickly at the truck.

The Feather-Touch Clutch Control gives the true "feel" of the load for accurate handling in setting pipe and Uniform Pressure Swing Clutches run all day, cool and dependable, without jerk or grab. Northwest steering easily negotiates the mucky going so often characteristic of sewer work and has been proved in countless miles of all kinds of travel. These features are typical of all Northwest Pullshovels from the ¾-yd. 25-D to the Model 95.

These things combine to get the job done faster and more profitably. They are the things that make it possible for you to say, "That Northwest is always ready to go." They are the features that make the Northwest the finest machine of its kind.

Details make the machine. It will pay you to dig them out. Ask a Northwest man!

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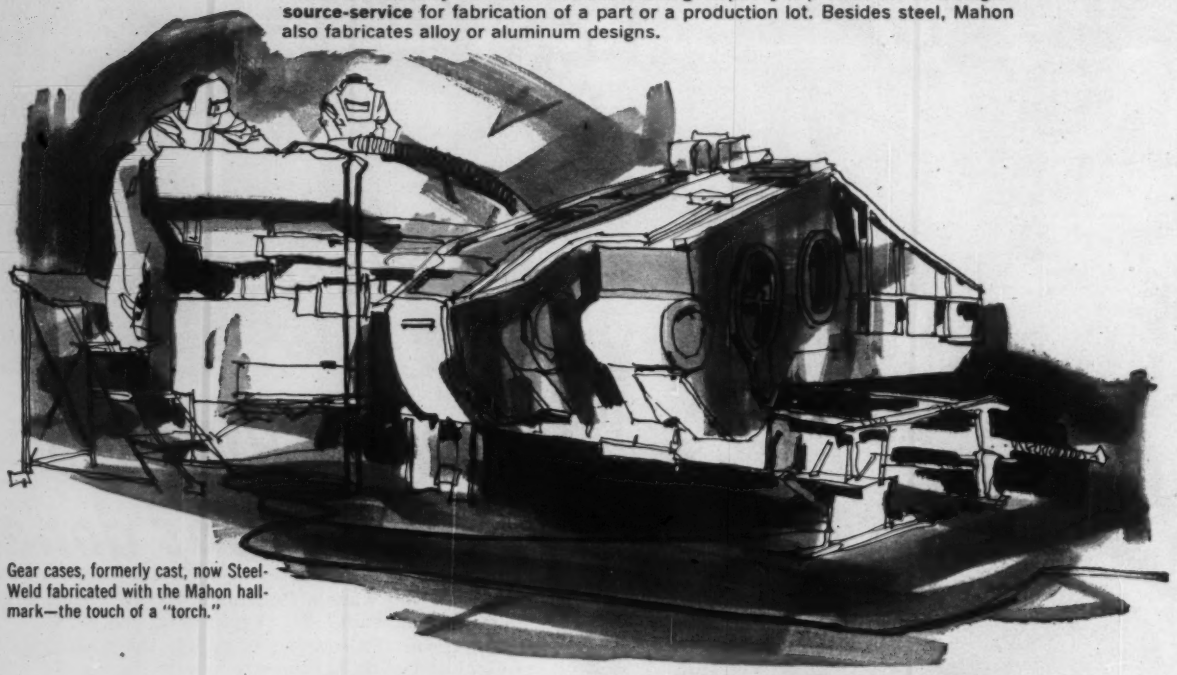

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Longer, stronger AMVIT Jointed Clay Pipe will never fail when the heat is on

Hot water from washing machines and dishwashers softens substitute pipe, flattening it out of shape

The photograph on the right shows a section of substitute non-clay pipe which had to be replaced after only 14 months of service.

Hot water from automatic washing machines and dishwashers softened this pipe so that the heavy earth above the pipe simply flattened it out of round.

Grease and scum tend to build up on the interior of the pipe and act as a solvent on certain synthetic substitute pipes.

Today, after facing the severe test of time and service, many of these non-clay materials are breaking down, costing taxpayers thousands of dollars for replacements.

Amvit Jointed Clay Pipe simply cannot be destroyed by sewer service. Like the pipe, the plastic joint is acid resistant. The design of the joint assures that the pipe is self-centered at all times. This gives perfect alignment and self-cleansing action.

This is an actual photograph of a substitute pipe failure.

Because the joint is really tight, no foreign matter such as dirt, stones and roots can possibly enter the line.

For more information on how Amvit can help cut sewer project costs, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

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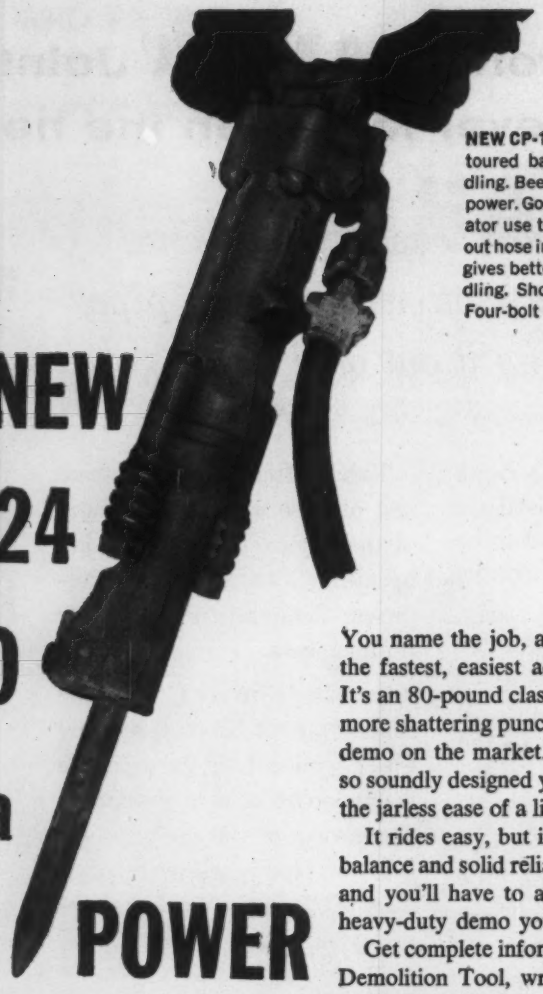

NEW CP-124 DEMO has body-contoured backhead for easier handling. Beefed up muscle for prying power. Gooseneck swivel lets operator use tool in any position without hose interference. Short length gives better balance...easier handling. Shock-proof steel retainer. Four-bolt backhead.

NEW CP-124 DEMO makes a POINT of POWER

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You name the job, and the "124" will give you the fastest, easiest action you've ever handled. It's an 80-pound class Demo, yes... but it packs more shattering punch per pound than any other demo on the market. It's so perfectly balanced, so soundly designed your men will handle it with the jarless ease of a lightweight tool.

It rides easy, but it hits hard! Unmatched for balance and solid reliability. Try out the CP-124, and you'll have to agree with us: it's the best heavy-duty demo you can get.

Get complete information on the New CP-124 Demolition Tool, write to your CP equipment distributor. Ask for a copy of SP-3260. *Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, N. Y.*

These Service-Proved CP Demos are an industry standard.

CP-115 makes horizontal breaking easy.

CP-117 puts profit in paving breaking.

Lightweight CP-113 hits hard, handles safely.

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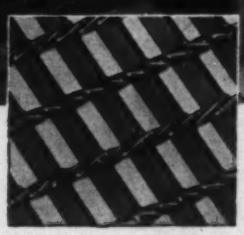

TWISTED Cross Bars *ALTERNATE* right & left for an *EXTRA* margin of Walking Safety

When you specify Kerrigan Weldforged grating you get the utmost in underfoot and underwheel safety . . . in addition to its well known economy features. Bearing bars, and cross bars that alternate right and left, are electronically weld-forged into inseparable, one-piece units that stand up under the severest kind of punishment.

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THE PATENTED DROTT 4-IN-ONE bucket (above) gives you 4-machine utility for one moderate cost. This hydraulically controlled split bucket combines shovel, clamshell, scraper and dozer action in a single tool. It saves time and labor by doing the work of several specialized machines with one operator and one machine.

EVERY 4-WHEEL DRIVE "PAYLOADER" gives more machine for your money. It travels to the job fast, under its own power... walks and works over sidewalks and curbs without damage... handles many scattered jobs in a single day. Mechanically, every "PAYLOADER" incorporates many proven Hough features for fast, easy operation that gets jobs done ahead of schedule. Judge for yourself how all the advantages of "PAYLOADER" versatility can be applied to your operations. A nearby Hough Distributor can supply complete details, or return the coupon.

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Reader Comment

Model State Code

SIR—As a longtime reader, I have often had reason to applaud your editorials. The issue of June 16 contains one, "Work for Better Codes," with the essence of which I am in hearty agreement, especially since I believe that we architects in New York have done something notably constructive in that field of endeavor. For years we have advocated and done our part in bringing into being a performance-type building code that can be applied uniformly over the whole state. The New York State Building Construction Code, completed in 1958, is the result of the effective collaboration of all interested parties.

Your editorial speaks for "those adventuresome designers who would like to try the new in the hope of producing better and less costly structures." It is specifically for those and for that hope that the state code has been prepared. It suggests, invites, encourages and stimulates imagination, invention and innovation. The difficulty of getting variances and amendments has been obviated.

The state code is a statement of performance criteria intended to assure safety, with minimum restraint upon creative ability. New things are not kept out of the code, because the application of its performance criteria is universal and permanent, covering all hazards in the use of buildings that have thus far been experienced or anticipated. And, if new hazards should be experienced, there is a ready, rapid and costless way of amending or adding to the performance requirements. Changes in the code do not require legislative action.

I am also in sympathy with your reference to "a manual listing accepted materials and methods" as having a "deterrent effect on the introduction of new materials and methods." In creating the state code, we recognized and wrestled with this problem, successfully, I believe. After we distilled the performance criteria into the code, we prepared an accompanying manual to do two things: (1) to explain graphically the intent of the code language and (2) to illustrate some unusual methods of designing and constructing that meet the performance criteria of the code—while continually stressing

(Continued on p. 16)

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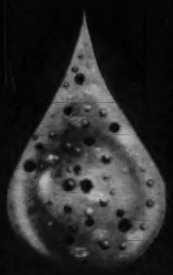

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WATER REDUCING AGENT

on the job at Anchor Block Plant

WRDA is used in the manufacture of lightweight, superior concrete blocks and precast specialties by the Anchor Block Company of St. Paul, Minnesota—one of the nation's major block producers.

Added to the mix at the mixer . . . WRDA produces a more plastic, workable mix . . . reduces culls . . . gives a better finish, sharper corners and fills molds perfectly . . . assuring more uniform, high-quality blocks on every run.

WRDA sales and technical service supplied by Construction Chemicals, Inc., St. Paul, Minnesota. Ask your distributor about WRDA and other fine Dewey & Almy Chemical Admixtures for concrete.

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DEWEY AND ALMY ADMIXTURES

designed to fit particular concrete needs

provides controlled air entrainment, greater durability

reduces water content, increasing concrete strength

gives controlled retardation of initial set

Built for the Basrah Petroleum Company, a group of British, Dutch, French and American oil interests. Engineers: Rendel, Palmer & Tritton (London)

28 miles at sea–

RAYKAY 1

Code name for a Raymond joint venture, Raykay 1 is the unique deep-water oil loading depot now being built 28 miles offshore in the Persian Gulf. It is scheduled for completion about March 1961, and is designed to speed Iraq's oil exports by eliminating congestion at the port.

A $15,000,000 project

This great terminal literally took off eight months ago, when it floated out from England behind a towline that would eventually carry it 7,000 miles to its final berth.

Twelve hundred feet long and complete with heliport and air conditioned crew quarters, Raykay 1 will be linked to Fao, its source of supply, by two 32-inch submarine pipelines. Two 65,000-ton tankers at a time will be able to load without having to navigate the shallow waters of the river leading to the present port. And the creative engineering of Raymond International is helping to make this possible.

Whatever your offshore problems, no matter how deep or distant, take advantage of Raymond's experience in many seas, in many parts of the world. We have the knowledge and the equipment, and we'd like to help. Write or call any of Raymond's offices throughout the world.

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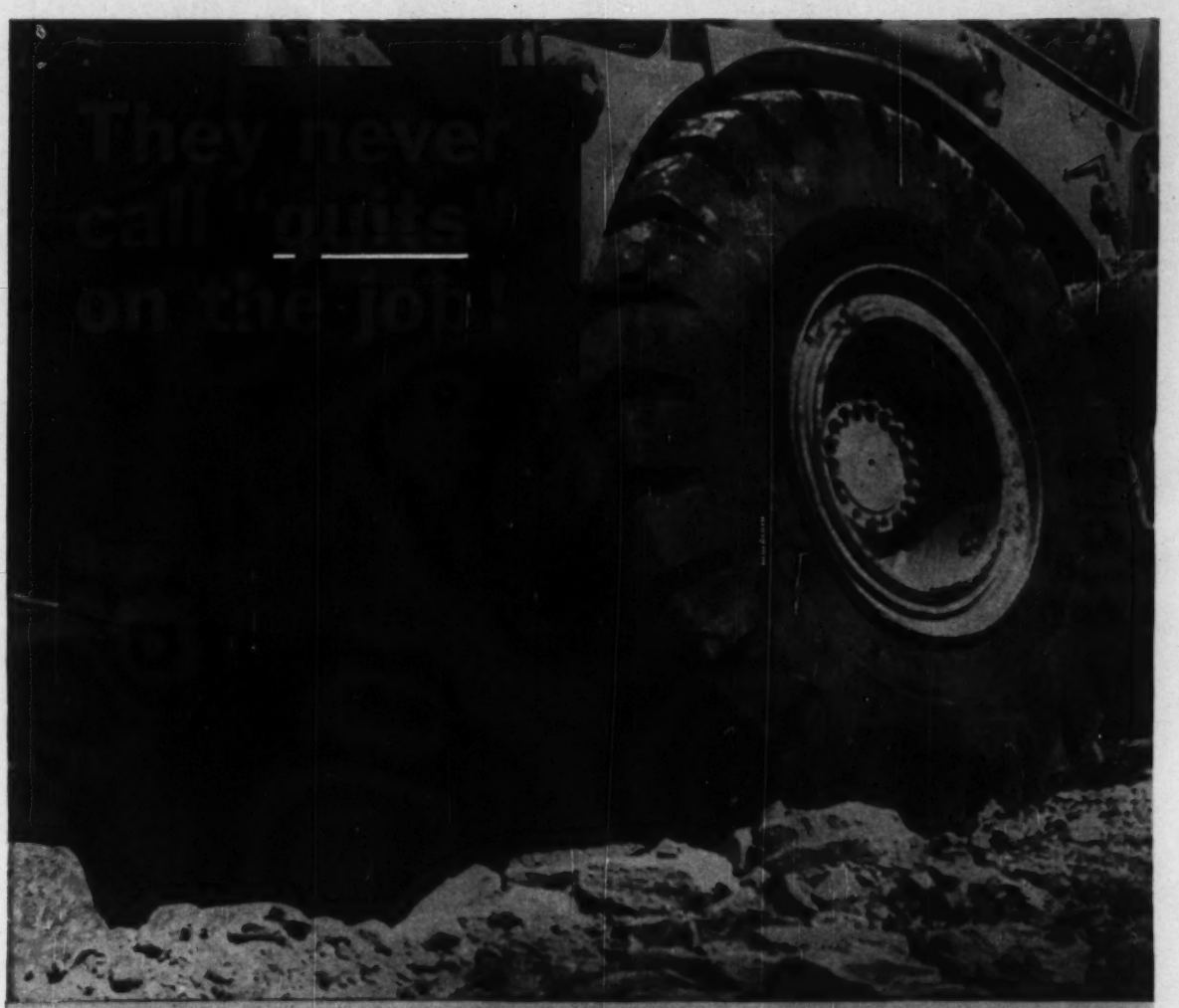

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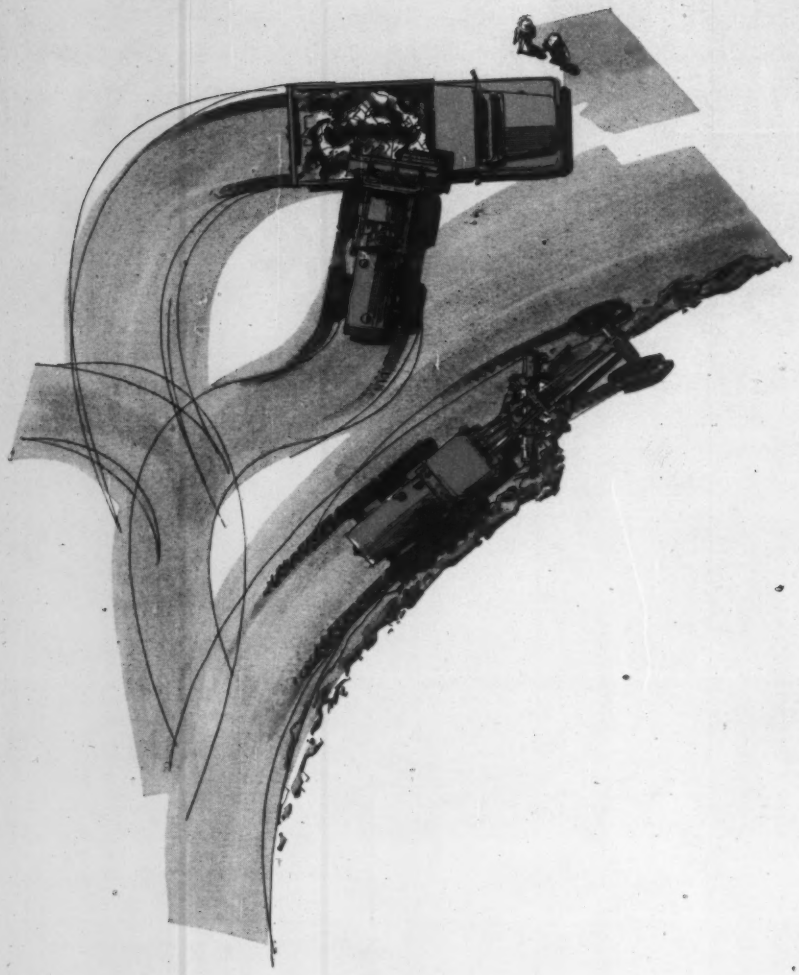

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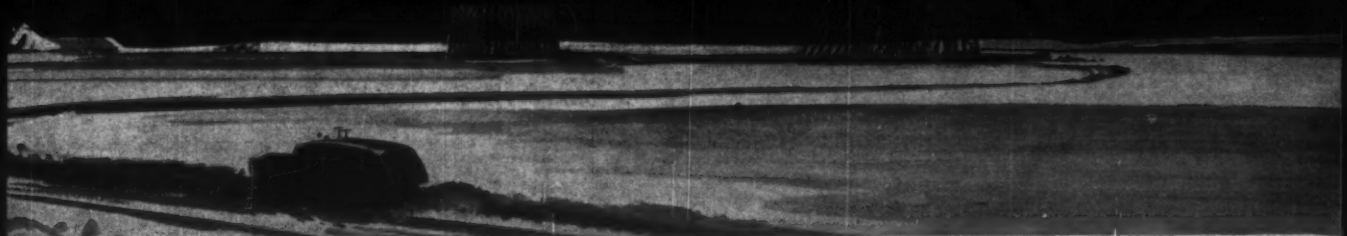

pany, builders, made certain of that by weaving foot after foot of USS National Seamless Carbon and Nickel Alloy Tubing into every antenna.

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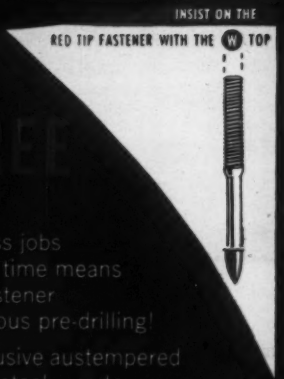

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. . . Reader Comment

the point that any other method may be used or invented if it meets the requirements of the code.

We then set up a procedure for evaluating such other methods and certifying to their acceptability. Already 150 "certificates of acceptability" of just such new methods and materials and combinations have been granted by the code agency. These certificates are distributed to all building officials using the code.

I agree that "many building departments today are understaffed and lack adequately trained personnel." Acceptance of the state code places the resources and facilities of the Code Bureau at the service of the local building department without cost. There are field men who respond to requests for visits. Telephone calls and letters to the bureau receive prompt and effective response. Major assistance has been rendered in more than 50 instances in the past year, ranging from a vast office and research building of a wholly new kind to a novel roof truss for a residence.

The state code has been widely accepted, although its use is entirely voluntary. It is now in force in 334 municipalities of the state and is available without charge to the rest of the people of New York. I believe it is the answer to your editorial in this state.

GEORGE BAIN CUMMINGS
Binghamton, N. Y.

Editor's Note: Mr. Cummings has recently been appointed code consultant to the Division of Housing of the State of New York. He also served as vice chairman of the New York State Building Code Commission from its inception in 1949 until it was abolished in 1959, when responsibility for the code was transferred to the Division of Housing.

Wasteful Estimating

SIR—A loud amen anent Mr. Szmak's comment on quantity surveys (ENR June 23, p. 25). I've often wondered why your editors haven't given more thought and space to the outmoded and almost criminal waste connected with the preparation of estimates for bidding purposes in this country.

A typical example of such waste in estimating was demonstrated on a sizeable project bid here in Los Angeles. The writer spent several months after the opening checking with the generals and subcontractors as to their individual cost in estimating this job. I personally was not surprised when the total figure came to slightly less than $500,000. Multiply this sum by similar projects being bid in this country every day and it approaches a sum that staggers the imagination. Who absorbs this tremendous waste—the contractors or the client?

JIM PRIEST
Estimators Ltd., Inc.
Long Beach, Calif.

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On a Supermatic 14", an operator can line up his cuts much faster than he can with a 20" saw without sacrificing cutting speed.

True, certain jobs call for capacity beyond 14" . . . for instance, a large block job where it is important to be able to cut in a single pass. For these jobs, Clipper offers you its famous Supermatic 300. But, **don't be misled!** If a 14" saw meets your requirements, and it meets the requirements of most saw owners, you can get 32.7% longer life out of your blades by choosing a Hi-Speed Clipper SM 314.

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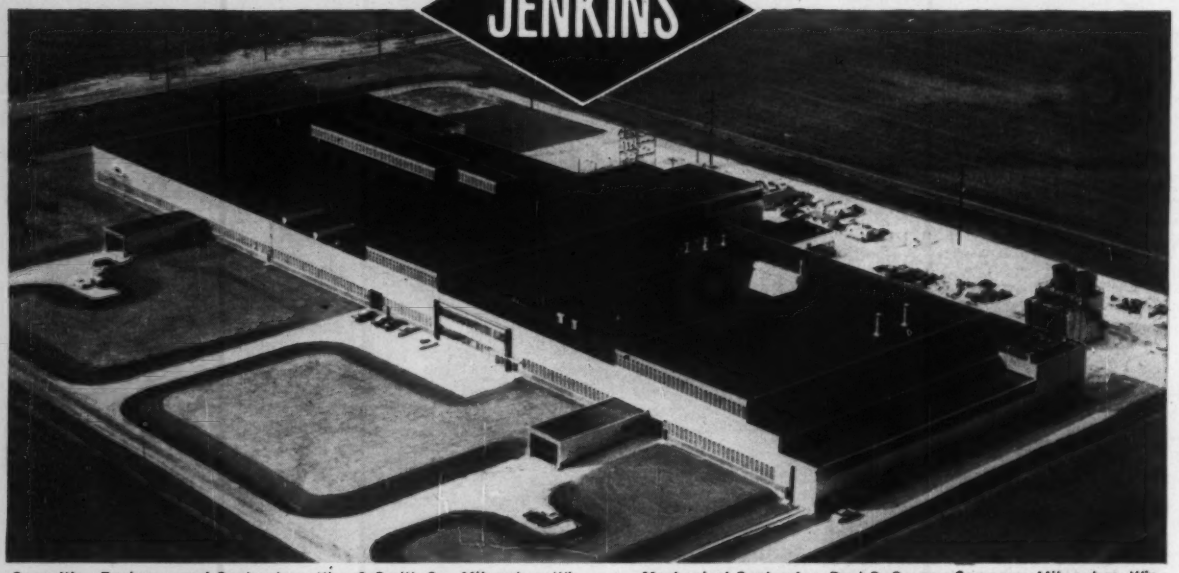

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With a trademark that promises the finest aluminum products, Mirro Aluminum Co. wanted the most trusted trademark in the valve world as an assurance of reliability for the complex piping system in its new $12,000,000 rolling mill in Manitowoc, Wisconsin.

There are over 15 miles of piping in this huge new mill that can produce 60,000,000 pounds of aluminum foil and sheets a year. But there will be no valve problems . . . no avoidable valve maintenance and replacement expense on these lines. Mirro made sure of that by installing Jenkins Valves throughout the system.

There's no point in gambling with valve problems when you can have the known reliability and trouble-saving quality of Jenkins Valves, without paying extra for the protection. Jenkins Bros., 100 Park Avenue, New York 17.

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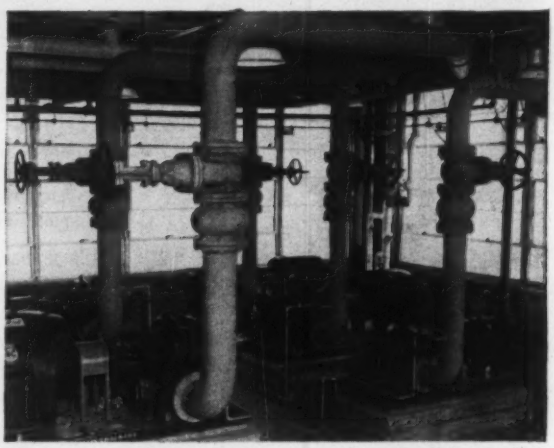

Jenkins Bronze and Iron Valves on lines in pump house for water cooling tower

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VALVES

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

ANOTHER PONTCHARTRAIN BRIDGE—Brown and Root Co. Inc., of Houston, is becoming something of a specialist in precast, prestressed bridges. It constructed the 24-mile bridge across Lake Pontchartrain in Louisiana. It's now working on a similar span over Pensacola Bay in Florida (see p. 45) and it has just bid low on a new Pontchartrain crossing, this one a twin bridge affair with two 40-ft-wide roadways, each five miles long. The 866 prestressed precast elements will also be made at the firm's yard at Mandeville, La.

EQUIPMENT PRODUCTION SLOWS—Equipment manufacturers are chopping their second half production schedules to half the rate of the first half, reports the Business and Defense Services Administration. Heavy disposals of federally owned equipment have compounded the problems of dealers, who are wrestling with a pile-up of inventory.

POST TIME FOR ALUMINUM—Two million pounds of aluminum will go into 35 miles of guard rails and posts on two New York expressways. It's the first use of aluminum in guard posts and one of the most extensive uses of this material in guard rails.

WILL IT HELP?—The decision by the Federal Housing Administration to permit individuals to purchase FHA-insured mortgages may bring more lenders, but not necessarily more money. The funds small private investors apply to mortgages will come largely from their deposits in banks and savings and loan associations, thus reducing the capital pool used for mortgage loan funds ordinarily.

TEST SHOT FAILS TO BLOW—Nothing happened when Atomic Energy Commission scientists pushed the plunger to detonate 500 tons of high explosives last week at Yucca Flats, Nev. Buried 125 ft underground, the non-nuclear charge was supposed to furnish information on cratering effects of explosives as part of the AEC's Project Plowshare for development of peaceful uses of atomic energy. The AEC will try again after it finds out why the shot failed.

BEST VIEW YET—The world's largest solar telescope will go under construction before the summer's end near Tucson, Ariz. It will consist of three large reflecting surfaces supported on a structure as big as a 10-story office building. The National Science Foundation has granted $4 million toward the cost.

FOR TRADITION'S SAKE?—A new seven-story, $660,000 office building in London may be demolished before the first stenographer has her first tea break. Authorities want to erect a garage on the site, which had been a parking lot for 25 years before the intrusion of commerce.

HOW TO HANDLE WET JOBS

Project: Little Rock Sewage Treatment Plant, Little Rock, Ark.
Contractor: Forcum-Lannom Inc., Dyersburg, Tenn.
Engineers: Burns & McDonnell, Kansas City, Mo.

Control 30 ft of ground water in coarse sand as wellpoints . . .

Keep Deep Cut Dry Close to Rising River

In pervious sand near the Arkansas River, Forcum-Lannom required a deep excavation going down 30 ft below ground-water table. Prior experience had indicated the area to be a difficult one for dewatering by the wellpoint method. A high pumping head, long discharge lines and a rising river level were among the problems.

• **Photo shows** what happened. The contractor had clear sailing as a 2-stage wellpoint system designed by Griffin engineers kept the excavation safe and dry. The lower-stage pumps pushed the water vertically a distance of 45 ft and then through 600 ft of discharge pipe to the river.

• **Ground water was held** below subgrade through 7 months of continuous pumping, with river level fluctuating 10 ft.

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WASHINGTON OBSERVER

- **Where the candidates stand**
- **Early start on '61 public works**
- **Big housing bill not likely**

● **Sen. John F. Kennedy, the easterner, has about as solid a record on public works spending as Sen. Lyndon B. Johnson, the southwesterner.** They've both been for such things as the high Hells Canyon Dam, cheap money REA, new reclamation and hydro projects for basin development, and the like.

Both Democratic candidates are in a position to attack President Eisenhower's policies on public works, on vetoing aid-to-depressed areas, on tight money and on housing. They're both for more federal stimulation and spending to boost the rate of economic expansion.

Vice President Nixon as the Republican nominee can't be all things to all men so easily as the Democrats can. If he's nominated—as seems almost certain—he still has to stand on Mr. Eisenhower's record, while arguing that he will do some things differently. Mr. Nixon already has come out against what he calls "growthmanship"—that is, against force-feeding economic expansion to keep up with the Soviet rate of growth.

—

● **Watch for the Republicans to do everything they can to spend or commit construction and public works funds this fall**—and the sooner the better.

The idea is: If the money is to be spent or the contract let in fiscal year 1961, let's do it now instead of later. The reason: to help the GOP cause in November in every possible way. There won't be any written orders to this effect from the White House, but the word gets around just the same. Results show up in highways, housing, flood control, federal buildings.

It will show up most sharply in Pentagon spending figures: Every Presidential election year, contracts are let that normally would be bogged down for months in the chain of command.

—

● **Brightening prospects for housing starts the rest of the year may dampen chances for a big shot-in-the-arm housing bill** out of the August session of Congress. The pre-convention-Congress was unable to pass a housing law because of a House-Senate split: The House members wanting to give the housing market another jolt of government aid, while senators favor a continuation of existing programs. Odds now favor the Senate's position.

Experts at the National Association of Home Builders predict a second-half pickup but probably not enough to offset the laggard first half. FHA reports that mortgage insurance applications turned up more than seasonally in June. VA reports that new home appraisal requests also took a more-than-normal jump in June.

Aid for housing for the elderly is available now. The President has signed legislation allocating $20 million for federal assistance voted by Congress in 1959.

Here's how the program will work:

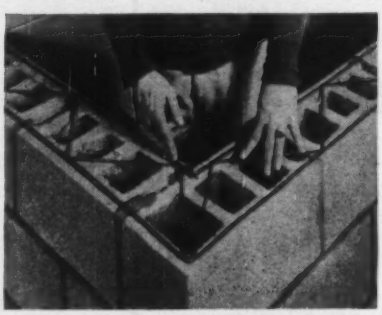
FHA mortgages may be bought by individuals from certified lending institutions that originate loans. The institutions will service the loans for a fixed fee, and collect in monthly payments.

it takes Dur-o-wal to keep them alike!

Two masonry walls: They can be twins in surface charm and solidity. Yet, one can be the better building investment—free of maintenance problems for important extra years. That's the one built with Dur-o-wal, the original steel masonry wall reinforcement.

A wall reinforced every second course with Standard Weight Dur-o-wal has 71 per cent greater flexural strength than its unreinforced counterpart.

With its trussed design, butt-welded construction, scientifically deformed rods, Dur-o-wal is considered the most practical thing of its kind by builders everywhere. Nationally wanted, Dur-o-wal is nationally distributed. Wherever you build a masonry wall, you can get Dur-o-wal.



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U.S. Steps Into Base Disputes

The months-long feuding over jurisdictional problems in the construction of missile bases may be headed for a government settlement. For months now, the construction contractors and the building trades unions have been opposing the missile makers and the industrial unions over who is to get gray-area contracts and which unions are to perform the work.

The disputed contracts include work claimed by electricians, plumbers, pipefitters, boiler-makers, and lathers.

The Labor Department is now working on a draft of a Bacon-Davis regulation that would attempt to specify which of the disputed jobs are construction work covered by the prevailing wage laws. The department has the authority to do this as part of its responsibility for seeing that prevailing wage rates are paid on federal construction contracts; the department has similar authority for non-construction contracts under the Walsh-Healey law.

The Labor Department's final disposition of Davis-Bacon application to missile base work will, of course, have no legal effect on work assignments because the law is concerned with wages only. It is not concerned with the question of who performs what work.

But to the extent the department classifies such work as construction work, it will tend to strengthen the construction industry's claim.

It will reduce the competitive advantage missile manufacturers have by requiring them to pay the higher rates traditional in the construction industry. It will serve to identify such work with the construction industry. It will protect the wage rates of construction workers. And it will tend to protect the interests of the building trades in their jurisdictional conflict with industrial unions.

A draft sent out for comment pleases the missile makers; but it's unsatisfactory to contractors and the construction trades. It would allow much of the disputed work to go to the missile manufacturers at their regular rates, on the theory that it is not construction work.

Labor Department officials aren't saying how soon the final word will be handed down, but they appear to be in no hurry.

Contractor representatives met with Air Force officials early last week on the jurisdictional problem only an hour or so after Secretary of Defense Thomas Gates had blasted Air Force and Corps of Engineer brass for allowing missile base construction to fall behind the readiness of the missiles themselves.

Jurisdictional strikes have set back Atlas bases.

Air Force Brig. Gen. Harold K. Kelley, deputy director for construction of the Air Force's Directorate of Civil Engineering, met with Don Buzzell, Welton Snow and Jack Bowersox of the Associated General Contractors and George Roscoe of the Council of Mechanical Specialty Contractors to see what should be done to settle the jurisdictional problem.

The contractors told General Kelley that the trouble lies in Air Force procurement policies on missile contracts. Air Force prime contracts give the missile maker over-all responsibility not only for the weapon and all its ground support equipment but also for installation of many structural and mechanical components of the missile base.

This squeezes out the construction contractors and the building trades. The prime contractor takes over much of the construction on the base and performs it with the same unions that work in the manufacturing plants.

Construction unions resent this encroachment on their territory. Picketing and work stoppages resulting from the jurisdictional conflict, as at the Warren AFB missile sites in Wyoming, have contributed to the setbacks in construction schedules.

The construction trades have carried their case to the Labor Department, which has responsibility for determining and enforcing prevailing wage rates on federal construction jobs worth $2,000 or more as stipulated by the Davis-Bacon Act. To clarify the issue, Labor Department lawyers began preparing the regulation to define what is construction work and what is not on missile bases.

By last weekend, 19 organizations had submitted their comments on the proposed regulation—including the contractor associations representing the

construction and missile makers, the AFL-CIO Building and Construction Trades Department, the auto workers and the machinists.

Labor Department began its effort to define and protect the province of the construction crafts on Air Force missile bases last December after an official observed missile-maker crews performing construction work, such as structural steel erection, on bases in California and Colorado. He called the infringements to the attention of the Air Force, and the service heads asked the Labor Department to draw up criteria that would enable the Air Force to separate work belonging to the construction trades, covered by Davis-Bacon, from on-site jobs that could be performed legitimately by employees of the missile manufacturer. Wages for the latter types of jobs are determined under the Walsh-Healey Act governing supply contracts.

In response to the Air Force request, labor officials worked up the tentative proposal dated May 18.

The tentative rule plainly points out that any construction item estimated to cost more than $2,000 requires Davis-Bacon wage determination and enforcement. Excluded in the draft from Davis-Bacon coverage are "all individual work items the estimated cost of which is $2,000 or less."

Construction spokesmen contend that this distinction, though clearly correct under the Davis-Bacon law, permits missile makers to break down multi-million-dollar contracts into work items of $2,000 or less for performance by their own forces.

These spokesmen don't attach much weight to language in the same paragraph that apparently bars such a split-up of on-site construction into small work items. After declaring, "The fact that the total amount of a supply contract exceeds $2,000 does not of itself require that individual work items of a construction type under the contract (not exceeding $2,000 in amount) are covered by the (Davis-Bacon) Act," the draft immediately warns, "However, no such item of work, the cost of which is estimated to be in excess of $2,000, shall be artificially divided into portions of less than $2,000, for the purpose of avoiding the application of the act."

Basically, the draft states, "The Department of Labor has found that a missile base, together with its permanently installed equipment, is a public work within the meaning of the Davis-Bacon Act and that construction of the base and installation of such equipment is regarded as 'construction alteration and repair'.

"Once installed, however," the draft continues, "the technical checking, operation, routine maintenance and repair and internal modification of the equipment or machinery in the building or structure is deemed operational activity and not subject to the Davis-Bacon Act, except to the extent that such work requires substantial modifications affecting the structure or installed utilities."

For the missile maker, the draft acknowledges that "much of the work at missile sites is novel, and there are no existing trade practices concerning it." Also, the proposal concedes that completion of a missile base is unique in another sense, because machinery and equipment may still be in the developmental or experimental stage during assembly and installation on the site. This kind of work has no definite "specifications," and it may require scientists, engineers and technicians rather than the "laborers and mechanics" named in the Davis-Bacon Act.

Contractors performing this kind of installation, the draft says, "are primarily manufacturers or producers. Their contracts are of the supply type."

Thorny problems arise from the more specific criteria in the draft that attempts to segregate jobs at the site into two categories: work subject to Davis-Bacon and work not covered by the act. The mechanical trades are particularly affected by the item-by-item definitions. Electrical construction gives a good illustration.

Electrical contractors and the International Brotherhood of Electrical Workers employed on their jobs mention console terminations, for example, as one point inviting conflict under the criteria. The draft would assign to construction electrical workers the fabrication and installation of cables from the primary power junction box to racks and consoles, along with inter-rack and inter-console connections, including tubing, conduit and wiring.

Construction people contend that the allocated items shut out their electricians from work involving a great many man-hours of skilled labor.

Electrical contractors argued that the interpretations presented in the draft with regard to wiring-in of electronic control and signal equipment likewise make an unrealistic application of Davis-Bacon requirements. Over-all, electrical contractors feel that the Labor Department draft is attempting by indirection to nullify the application of Davis-Bacon to construction work on missile bases.

General construction contractors in the AGC are not so pessimistic about the Labor Department's final interpretations. They have some confidence that the final, effective version of the criteria will go a good way toward clarifying the murky question of what work should go to construction crews, and what to missile makers.

...Jockeying Over

The first four full-scale Atlas ICBM sites—at Warren, Offutt, Fairchild and Forbes Air Force bases—will be combat-ready later this year and early in 1961, from three to six months behind initial schedules.

Output of the 80-ft missiles is on schedule. But construction of necessary launch facilities and installation of ground support and checkout equipment has been delayed.

Defense Secretary Gates officially acknowledged the delays last week and ordered the Air Force and Army Engineers to propose steps to speed work on the projects. The proposals are due on Mr. Gates' desk this week (see page 23).

Several "corrective" steps are in the works to push construction work faster on the bases now behind schedule and to prevent delays on the other installations under construction. So far, construction work on the six other Atlas bases and the five Titan bases now being built (see chart) is running on or slightly ahead of schedule.

This is what the Pentagon is considering:

The Air Force wants to set up at each missile site a single "construction czar" who could make binding decisions on local jurisdictional labor disputes and other sticky issues.

At present decisions at each base must be coordinated through representatives of five separate authorities—the Air Force's Ballistic Missile Division, responsible for design and development of the weapon system; the Air Force's Ballistic Missile Center, an arm of the Air Materiel Command, responsible for production of the equipment; the Army Corps of Engineers; the prime missile contractors, whose employees work under a different set of wage rates than do the building trades union members; and the Strategic Air Command, which will operate the base when completed.

The Air Force reportedly recommends that the SAC base commander act as the "construction czar."

There are sharp differences of opinion within the Pentagon about the causes and nature of the delay. Some defense officials place most of the blame on the Army Engineers and their contractors, who are responsible for brick-and-mortar construction; other officials put the finger on the Air Force and its weapon system contractors—Convair and the other hardware manufacturers.

Army Engineer construction contracts, which have been running from $19.2 million to $26 million for the first four Atlas units, accounts for roughly 40% of the total facilities and equipment cost per missile squadron.

(*Story continues on p. 26*)

Jurisdiction and Change Orders Delays Atlas Bases

	Base	Prime Contractors Date of Award	Completion Date Original Date	Completion Date Revised Date	Status
ATLAS	Vandenberg Santa Maria, Calif.	7/58 Hardeman; Frederickson; Stolte; Kasler; Utah Construction	9/1/59	No revision	3-missile launcher complex designed for operational use; turned over to USAF on schedule.
	Warren—1st sqdn Cheyenne, Wyo.	7/58 Geo. Fuller	9/1/59	9/19/59	Turned over to USAF on revised schedule date.
	2nd sqdn	3/11/59 Blount Bros.	1/12/60	7/12/60	99% in place now.
	3rd sqdn	12/4/59 Martin K. Ebby	3/15/61	5/1/61	28% in place, slightly ahead of revised schedule.
	Offutt Omaha, Neb.	3/30/59 Malan Construction Co.	4/10/60	9/3/60	99% completed, expect to make new target date easily.
	Fairchild Spokane, Wash.	4/27/59 Blaw-Knox	8/1/60	11/1/60	85% in place.
	Forbes Topeka, Kan.	5/5/59 Independent Construction Co.; Blaw-Knox	9/1/60	12/15/60	65% in place.
	Schilling Salina, Kan.	3/7/60 Utah Construction; Manhattan; Sundt	4/12/61	6/26/61	Change in completion date reflects expansion from 9 to 12 launchers for base, not slippage. 25% in place. Project slightly ahead of schedule.
	Lincoln Lincoln, Neb.	4/15/60 Western Contracting Corp.	4/1/61	7/16/61	Another expansion in base's size. 4% in place.
	Walker Roswell, N. M.	6/15/60 Macco; Raymond Intl.; Kaiser; Puget Sound Bridge & Drydock Co.	10/1/61	10/27/61	2% in place.
	Dyess Abilene, Tex.	5/27/60 H. B. Zachry; Brown & Root	9/1/61	9/6/61	2% in place.
	Altus Altus, Okla.	4/27/60 Morrison-Knudsen; Hardeman; Lavelle; Olsen; Scott	8/16/61	No revision	2% in place.
	Plattsburgh Plattsburgh, N. Y.	6/14/60 Raymond Intl., Kaiser; Puget Sound; Macco	11/1/61	11/27/61	2% in place.
TITAN I	Lowry—1st sqdn Denver, Colo.	4/17/59 Morrison-Knudsen; Olsen	7/1/61	8/1/61	64% in place.
	2nd sqdn	6/12/59 Morrison-Knudsen	6/1/61	No revision	61% in place.
	Beale Marysville, Calif.	1/15/60 Peter Kiewit	2/1/62	4/1/62	9% in place. Running slightly ahead of schedule.
	Mountain Home Mountain Home, Ida.	4/9/60 Kaiser; Raymond Intl.; Macco	2/1/62	4/1/62	10% in place. Running slightly ahead of current schedule.
	Larson Moses Lake, Wash.	11/12/59 McDonald Scott	4/30/62	3/31/62	30% in place. Running slightly ahead of current schedule.
	Ellsworth Rapid City, S. D.	12/8/59 Lavelle; Scott	12/15/61	No revision	29% in place. Running 6% ahead of schedule.
TITAN II	Davis-Monthan Tucson, Ariz.	2 sqdns. Plan to advertise for bids in the fall, award contracts about 2 months later. Completion date spring of 1963.			
	McConnell Wichita, Kan.	2 sqdns. Plan to advertise for bids in the fall, award contracts about 2 months later. Completion date spring of 1963.			
	Little Rock Little Rock, Ark.	2 sqdns. Plan to advertise for bids in the fall, award contracts about 2 months later. Completion date spring of 1963.			
	Site for two more Titan II squadrons still to be selected. Will probably be at one base as with other Titan II units.				
MINUTEMAN	Malmstrom Great Falls, Mont.	3 sqdns of 50 launchers each. To be awarded in January 1961, to be completed about July 1962.			

(*Story starts on p. 24*)

Air Force production contractors—particularly Convair—are responsible for installing, checking out, and "integrating" the apparatus for propellant storage and loading, missile handling, guidance control, and other ground support facilities on the Atlas bases—"putting in the jewelry," as one Pentagon man calls it.

Pentagon officials say several issues are involved in the failure to meet operational target dates for the first four Atlas bases:

- Construction change orders in base designs generated by missile launching tests, which have been conducted concurrently with the building of the operational installations. Offutt AFB has received 50 major construction change orders alone in the past year.
- Jurisdictional labor disputes between building trades unions working for the construction contractors and the unions working for the missile producers. Several major work stoppages have occurred.
- The indistinct separation of the responsibilities of the Army Engineers and the Air Force—and their respective contractors—on base construction. As "weapon system" prime contractor on Atlas, for instance, Convair's powers have gone far beyond conventional manufacturing, the critics complain.
- Delayed delivery of important ground support equipment to base construction sites.

Behind all these factors is the general problem of building brand-new types of facilities in which neither the military nor the contractors have had experience before.

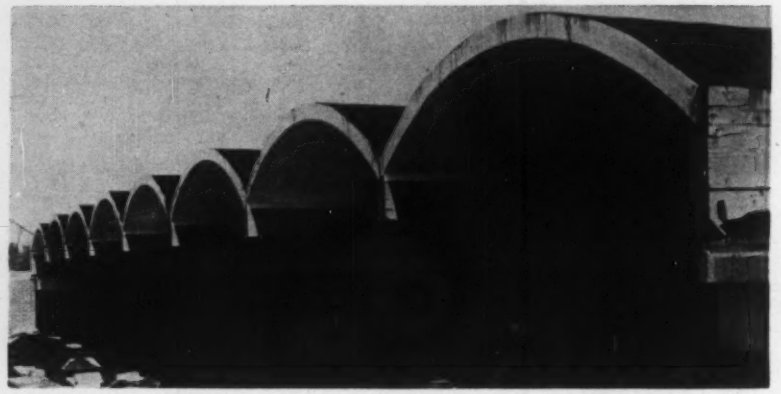
Ohio Engineer Can Be An 'Inc.,' Court Rules

The Ohio Supreme Court has refused to bar A. M. Kinney, Inc., well-known Cincinnati consulting engineer firm, from the practice of engineering.

The case involved the question of whether an engineering corporation organized prior to 1943, the year the Ohio legislature prohibited the formation of new engineering corporations, could continue in practice. Last November, in a case involving a Cleveland corporation, the Summit County, Ohio, Court of Appeals decided that no corporation, regardless of when it was organized, had the right to undertake contracts for professional engineering services.

In the case of A. M. Kinney, Inc., however, the Supreme Court now holds that while the 1943 statute prohibited new engineering corporations, it specifically authorized the continuance of the practice of professional engineering by corporations engaged in such practice prior to 1943. The Kinney firm was incorporated in 1929.

Central Area of Motel . . .



. . . Has Plywood Barrel Roof

Plywood barrel shells and precast concrete frame a four-story motel recently opened on the New York Thruway, 12 miles from midtown Manhattan.

Called Motel in the Sky, the project comprises the 76-room building, a large restaurant, swimming pool and parking facilities for 200 cars. Total project cost was $1.5 million.

Eight identical plywood barrel-shell units cover the central roof area 96 x 38 ft. They are supported on 6 x 12-in. laminated timber beams. Spaced 12 ft c-c, the timber beams cantilever to carry the roof shells over the balconies below. Precast concrete plank and girders frame the remainder of the 350 x 70-ft roof area.

Cross, Austin & Ireland Lumber Co., of Brooklyn, fabricated the 5½-in.-thick shell sections from 4 x 14-ft plywood sheets, and 4½-in.-deep laminated ribs. Ceiling plywood is ⅜ in. thick; roof plywood is ½-in thick. The ribs, spaced at 16 in., form cells, which are filled with glass fiber insulation.

The fabricators made all permanent joints with Phenol-recorcinol waterproof adhesive. They nailed the sections together to form them around the template and to hold them until the joints had set.

Herbert A. Wiener, consulting engineer of Newark, N. J., designed the barrel shells in three materials: precast concrete, cast-in-place concrete, and plywood. Plywood proved most economical.

Typical floor and roof framing consists of hollow concrete plank units supported on precast, reinforced concrete columns and girders. The girders are cantilevered at both ends to support balconies.

Mr. Wiener detailed the girder-column connection without brackets. Column dowels fit through pipe sleeves set in the girders. Grouting the dowels makes the joints rigid.

Garden State Concrete Co. of Lindhurst, N. J., manufactured the precast columns and girders. Flexicore Concrete Products, a division of American Marietta Co. of New York City, furnished the precast floor and roof units.

Samuel Malkind of New York City was architect. Anthony M. Fusco, of Valhalla, N. Y. was the general contractor. Mr. Fusco is also president of the owner group.

Kentucky leads as . .

Five States Move to Tollroads

When Congress created the Interstate highway system in 1956 many construction observers thought the days of toll highways were numbered. But if they are, the number appears to be a large one.

Not only do most of the old tollroads continue in good financial health, but five states have recently come up with plans for new pay-to-drive routes.

• **In Kentucky,** the highway department has hired consulting engineers to plan and design a 120-mile tollroad in the western part of the state. The state is also ready to move ahead on a 43-mile route in the eastern section (see map).

• **In Florida,** a 97-mile extension of the Sunshine State Parkway seems assured with the agreement of New York underwriters to take a bond issue of between $50 million and $55 million from the Florida Turnpike Authority.

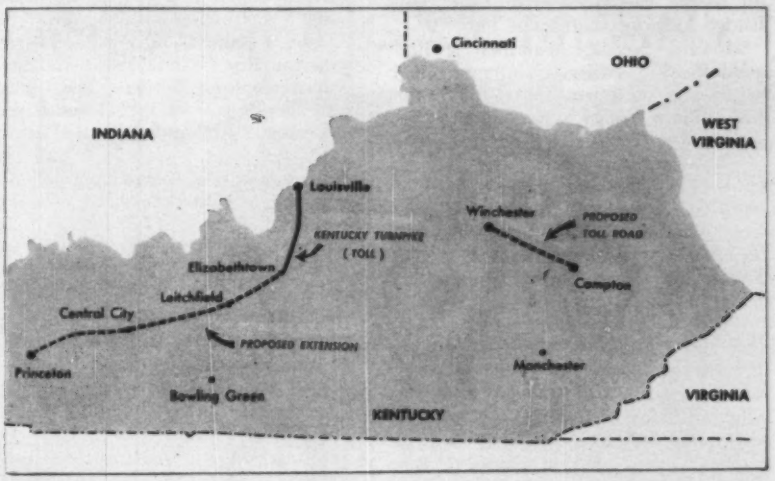
• **In Oklahoma,** the Turnpike Authority has asked approval from the state supreme court for the sale of revenue bonds to finance new tollroads in the southwestern and eastern parts of the state.

• **In Delaware and Maryland,** plans are moving ahead for a cooperative effort on a $140-million tollroad to connect the Delaware Memorial Bridge, near Wilmington, with the Baltimore Tunnel.

The Kentucky road will run from the southern end of Kentucky Turnpike near Elizabethtown to a point near Princeton. Engineering phases of the work are to be completed by next spring with initial bids for construction to be taken by next April. The road is expected to be open to traffic in 1963. Preliminary estimate of cost is $70 million, to be financed by sale of revenue bonds.

The road will provide direct access from Louisville to the Kentucky Lake-Barkley Dam recreational area and tighten economic ties between Louisville and western Kentucky. Although not involved in the present project, Gov. Bert Combs has pledged a further extension to Paducah by 1963. There is no direct connection between these areas on the Interstate system.

The Brighton Engineering Co. of Frankfort (Ky.) will serve as general consultant at a fee of 1%. Nine other engineering firms will do detailed planning and design at fees of 3½%. The firms are: Hurst-Rosche & Associates, Lexington; Johnson, Depp & Quisenberry, Owensboro; Harry Balke Engineers, Cincinnati; Carl P. Broboth, Lexington; L. E. Gregg & Associates, Lexington; C. J. Fuller, Lexington; Preston & Associates, Lexington; H. A. Spalding, Hazard; and Adam K. Grabe Associates, Lexington.



KENTUCKY PLANS a 120-mile extension and a new 43-mile tollroad.

Last month, the Kentucky Court of Appeals upheld key features of the state's 1960 Turnpike Act, clearing the way for financing the 43-mile tollroad from Winchester to Campton in eastern Kentucky and other routes.

Cost of this route is estimated at $30 million. The highway department has begun purchase of right-of-way; completion in 1963 is anticipated.

A firm of New York underwriters has agreed to take a $50-million to $55-million Florida Turnpike Authority bond issue to build a 97-mile extension of the Sunshine State Parkway from its present northern terminus at Fort Pierce to Orlando. Validation of the bond issue by the state courts is the next step.

Turnpike officials feel that location of a buyer for the bonds removed the last major barrier to construction of the extension. They believe the route may be open to traffic during 1962. Its completion would provide more than 200 miles of limited access tollroad from Miami to Orlando.

If Oklahoma gets the go-ahead from its supreme court, investment firms hope to offer bonds totaling from $70-million to $80 million by fall.

Under consideration are a southwest route from Oklahoma City to Chickasha to the Texas border near Wichita Falls, and an eastern route from the direction of Dallas to Tulsa and northeastern Oklahoma. The first route has no competition from the Interstate system; the second is roughly parallel, but east of I-35 between Dallas and Oklahoma City.

The state highway commission has agreed to spend nearly $18 million in state and federal funds for free road connections with the proposed southwest tollroad.

The Delaware-Maryland proposal is for construction of a portion of Interstate Route 95 as a tollroad to speed up its construction.

The Maryland legislature has passed necessary enabling acts. In Delaware, one house passed the required permissive measure before the legislature adjourned.

Since the two states want the route to remain in the Interstate system, permissive legislation had to be passed by Congress. Each state has spent funds on preliminary engineering, right-of-way acquisition and/or construction. Each state has been reimbursed by the Bureau of Public Roads for the sum of the work that has been finished up to now.

The states propose to reimburse the federal government from the sale of revenue bonds. Basic federal-aid highway legislation does not permit Bureau of Public Roads to accept refunds from the states for funds already expended.

To solve the problem, Congress endorsed an amendment to the 1960 Federal Aid Highway Act permitting the two states to return the money contributed by the federal government. President Eisenhower has signed the bill into law.

Authority to Invite Bids For Bridge Modification

Unable to reach an agreement with the contractors on the cost of modifying the storm-racked Hood Canal floating bridge, the Washington State Toll Bridge Authority will invite bids.

Howard, Needles, Tammen & Bergendoff, Kansas City consultants called in by the authority to complete the $17-million bridge, say modifications should cost less than $3 million.

The combine holding the original contract for the bridge claims the new work will be worth more than $9 million. The members of the joint venture are Morrison-Knudsen Co., Henry J. Kaiser Co., Puget Sound Bridge and Dredging Co., General Construction Co.

Plans for the contract will be available about August 1. The bid opening will be three weeks later.

The floating bridge was originally scheduled for completion in May of this year, but accidents that sank or damaged the pontoons delayed construction three times (ENR Feb. 18, p. 30). The latest tragedy to strike the bridge was a financial one—it's running out of money (ENR July 14, p. 131).

LA Would Get More Water Without State Project

The Los Angeles Department of Water and Power took a step last week toward providing the city with additional water without relying on the controversial Feather River Project.

The city agency ordered immediate field investigations, engineering, and economic studies of a "second barrel" addition to the Los Angeles Aqueduct. The addition would increase the amount of water available from the Owens Valley-Mono Basin watershed in the High Sierra.

"This investigation is imperative because of the serious questions that have been raised as to how much the citizens of Los Angeles will have to pay for the Feather River Project and because of the U.S. Supreme Court suit brought against California by Arizona," warned J. C. Moller, president of the city board.

Condemning MWD's capital financing policy, Mr. Moller said, "Under their (MWD's) present, outmoded method of charging for capital costs according to assessed valuations, the people of Los Angeles would have to pay $205 million.

"That is $157 million more than the fair amount that Los Angeles citizens should pay on the basis of water capacity, demand and use. This overcharge would pay for the entire cost of the proposed second barrel, which would bring us twice as much water as we plan to take from the Feather River through MWD."

Around the World...

• **Amistad authorized**—President Eisenhower has signed a bill authorizing construction of the Amistad Dam, a joint U. S.-Mexico project, on the Rio Grande about 12 miles upstream from Del Rio, Texas, near the confluence of the Devils River. Amistad, previously called Diablo, will be about 253 ft high and 6.4 miles long. Estimated cost of the project, exclusive of generating units, is $79.1 million. The U. S. will pay about $56.6 million of the cost and receive proportionate benefits.

• **Voters OK housing**—At a special referendum, voters in Coronado, Calif., approved granting a 50-year lease for a $35-million multi-story apartment project housing 2,000 families. Construction is scheduled for early 1961. Architect is Hugh Gibbs, Long Beach, Calif.; Philip Yousem, Venice, Calif., is the developer.

• **From Cairo to Dokki**—Cairo, Egypt, has just completed a study of a proposal to build a $7-million, 11-mile suspension bridge over the Nile River and Gezira Island. The span would link central Cairo with the leftbank district of Dokki.

• **Big hydro job coming**—A proposed $50-million hydro project in Washington appears to be moving toward construction. The Klickitat County Public Utility District has picked a site in Trout Lake Valley for a major water storage dam in its 210,000-kw plans for the White Salmon River. Several more months of preliminary work will be required before the District files with the Federal Power Commission for a construction contract.

• **Tower for Denver**—Construction on a $6-million, 24-story office building in Denver is scheduled to begin in early 1961. R. E. Ervin is consulting architect working with Piel, Slater, Small and Spenst Associated Architects. Structural engineer is Phillips, Carter & Osborn. All are from Denver.

• **Sewers for Boston**—A $40-million sewer construction bill has passed the Massachusetts House of Representatives and been sent to the State Senate. The bill authorizes construction of sewers by the Metropolitan District Commission, which serves cities and towns in the Boston area.

Bay Area to Study Port Authority

Studies by a California commission may lead to formation of an over-all authority in the San Francisco Bay area. The authority would operate existing bridges, ports and airports, and would be authorized to construct additional facilities of this nature.

The Golden Gate Authority Commission, now conducting hearings on the question, is expected to prepare a report in time for action by the 1961 legislative session.

Authority supporters feel there should be greater coordination of publicly owned transportation and shipping facilities to serve the 79 incorporated cities in nine counties bordering San Francisco Bay.

The authority proposal is patterned after the Port of New York Authority. Rapid transit is not included in the study authorization; a rapid transit agency, which cuts across existing governmental jurisdictions, already exists for the San Francisco region.

The Golden Gate Authority Commission is charged with recommending the form that an authority might take, its powers; and which existing facilities it might include. The authority, for example, might take charge of five toll bridges now operated by Department of Public Works, and of the Golden Gate Bridge, now operated by a separate bridge and highway district.

The proposed authority could also include airports now operated by the cities of San Francisco, Oakland and San Jose. And it could include ports operated by the state, municipalities or private interests at San Francisco, Oakland, Richmond and Redwood City.

The authority could, of course, construct additional bay crossings as needed, as well as add to and improve existing port and airport facilities.

So far the Golden Gate Authority Commission has held 11 public hearings in various Bay Area locations. More are due. And the commission will consider reports from engineering, financial and legal consultants.

As envisioned, the proposed authority would have no taxing power, but would depend on revenues for operating expenses and bond redemption. Income from the Bay Bridge alone should be enough to implement a sizable program.

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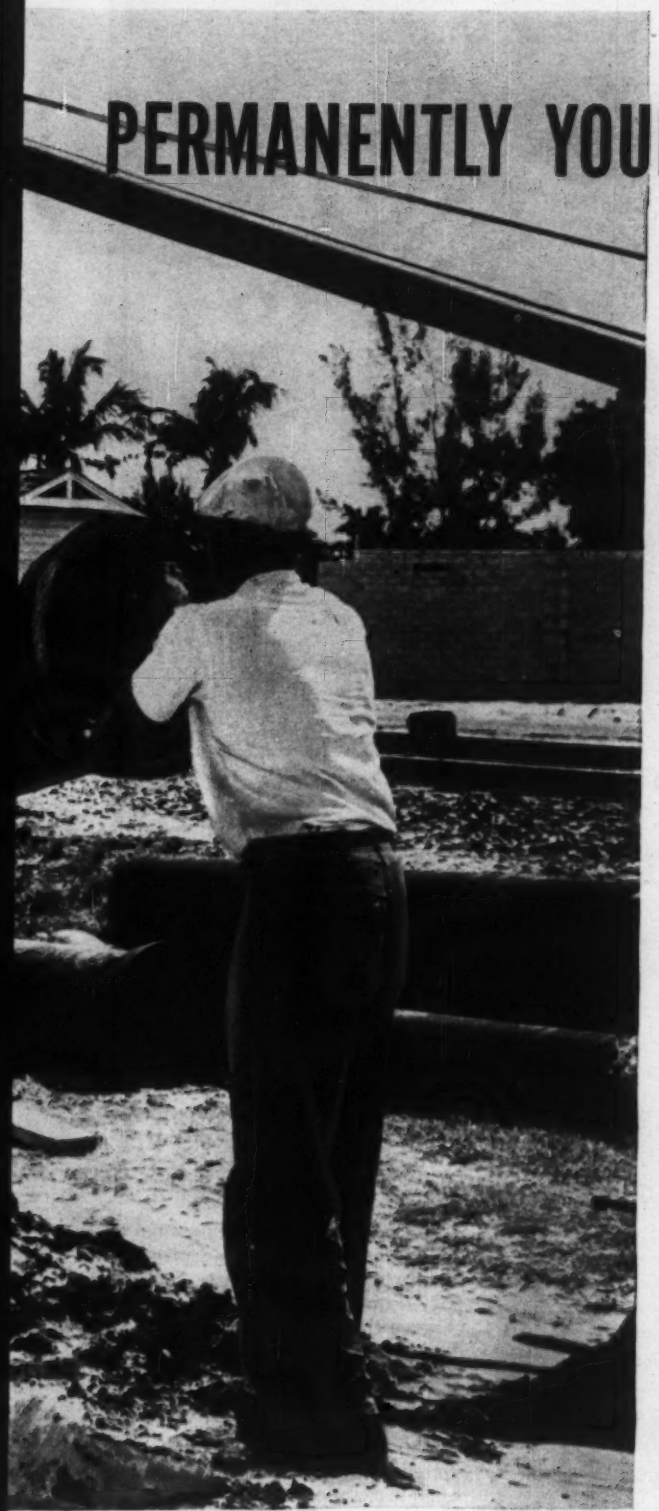

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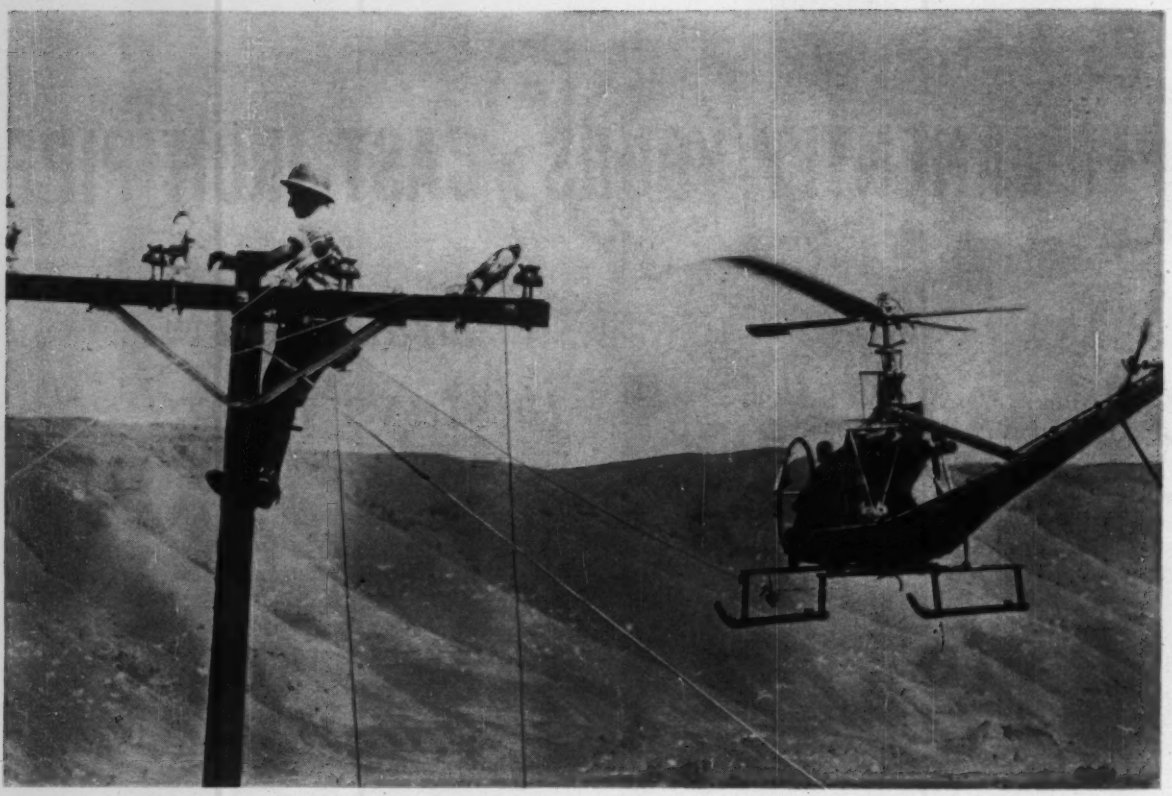
CAST IRON PIPE



Helicopter plants poles and strings wire in rugged terrain.

Two Ways to Plant a Power Line

Big-boom crane sets power poles through live wires.

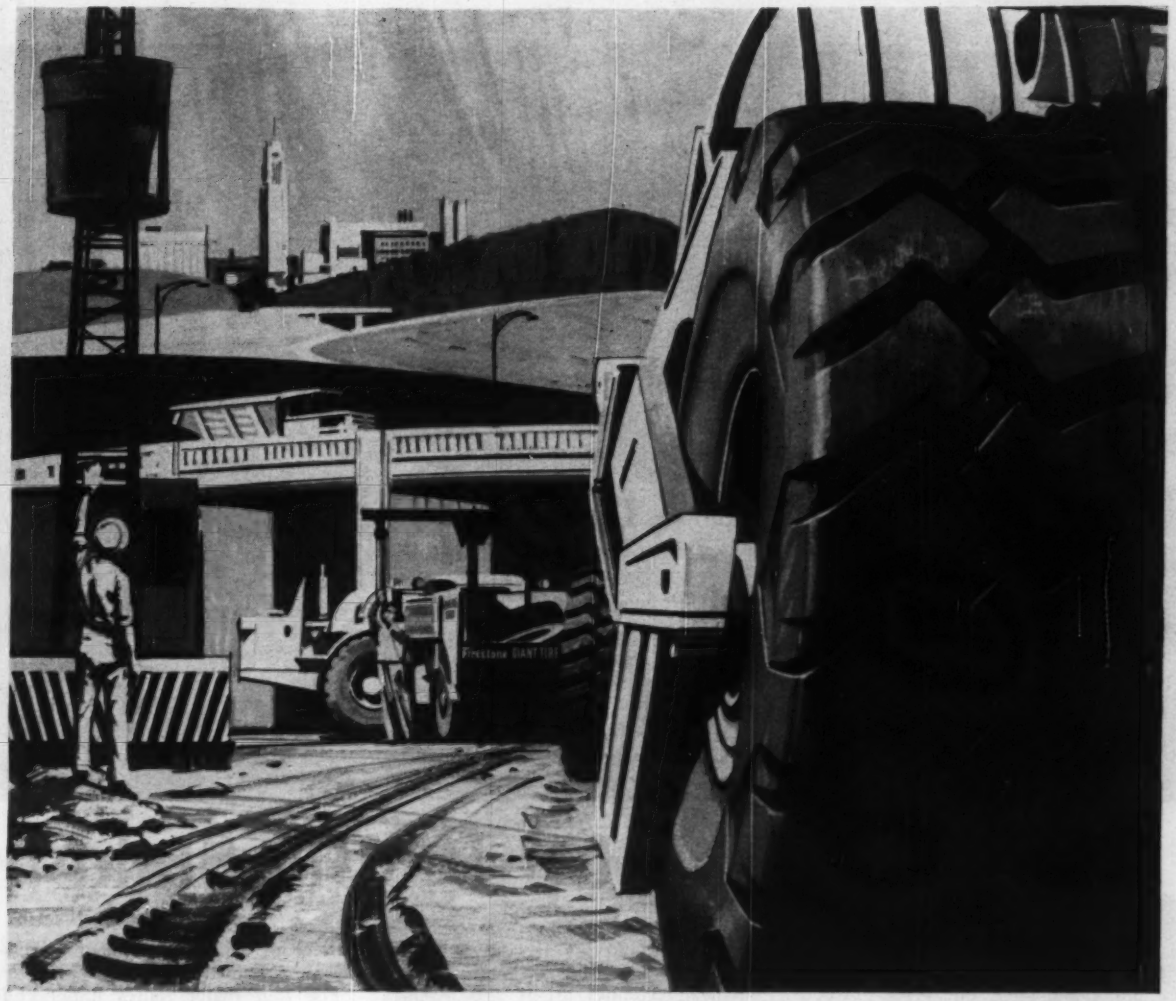
Power line poles and conductors were up in the air temporarily on two West Coast jobs. But the contractors found that a long-boomed crane and a helicopter brought things down to earth in a hurry and with dollar savings.

Roth Construction Co. of Seattle put up a seven-mile, 12-kv line through live wires using a 27-ton crane with a 110-ft boom. It placed 11 poles per working day, more than double the normal rate.

De-energizing the existing line was out of the question because it served businesses and homes along the highway. Lowering the 70-to-85-ft poles between the wires was safer than tilting the poles up from below and obstructed traffic less.

Wilson Construction Co. of Portland erected a 2¼-mile four-conductor line in only 6 hours and 50 minutes on a stretch that went from sea level to 1,000-ft elevation. First a helicopter set 33 poles in predug holes along the hilly right-of-way. Then, from truck-mounted spools, the helicopter threaded the conductors from pole to pole.

Pole setting took 3 hours, 54 minutes. Wire threading took 2 hours, 56 minutes.



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Chicago Will Up Its Big Stake in

Chicago—served by an expressway net that took 15 years to build at a cost of a billion-and-a-half dollars—is ready to go on a new expressway program to meet its 1980 needs.

Those needs are being spelled out this year in a series of reports climaxing a four-year, $2-million Chicago Area Transportation study.

Whatever successes Chicago has had and will have in developing a highway traffic net for its metropolitan area can be attributed to a high degree of coordination: planning, design and construction agencies have worked closely; city, county, state and federal interests in roads have been merged; expressway plans have been linked closely with other developing forms of transportation—the airports, the waterways and harbors, railroads, and rail rapid transit.

Here's what the 15 years of coordinated effort in the nation's second largest city have produced:

Chicago's current expressway program will provide a 117-mile network of free and toll roads in, out of and around the city.

Finished segments of the system are the Edens Expressway, Calumet Expressway, Kingery Expressway, Calumet Skyway and the Illinois Tollway. Underground sections of Wacker and Michigan Avenues might also be included. They provide for traffic movement and distribution around the western and northern fringes of the central business district (the Loop).

This underground route is now connected to the eastern end of the Congress Expressway, and the Congress Expressway is in partial operation, complete except for a critical 3.5-mile gap in its center section.

Elderly Lake Shore Drive, along the lakefront, is an expressway, but not a part of the integrated system.

The $400-million Illinois Tollway (ENR Aug. 7, 1958, p. 37) was completed late in 1958. The 187-mile toll road is made up of three major segments: the Tri-State Toll Road, a belt route around Chicago; the North Illinois Toll Road, which extends from the Tri-State route in a northwesterly direction toward Rockford, Ill., and connects with an Interstate route near Beloit, Wis.; and the East-West Toll Road, a short stub from the Tri-State route westward across the Fox River just north of Aurora, Ill.

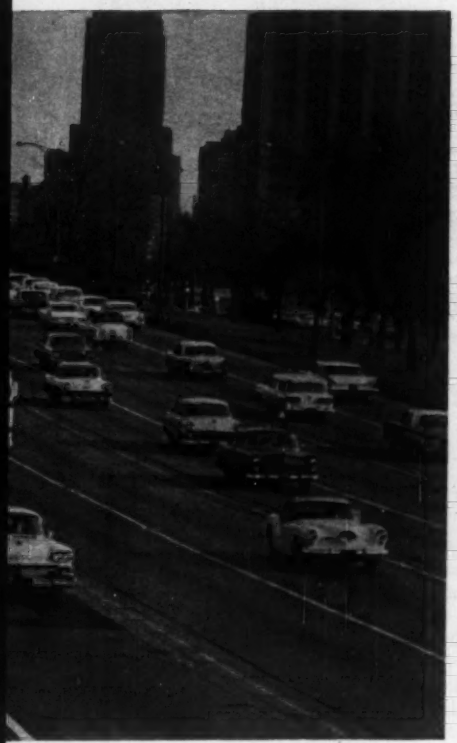
The Tri-State Toll Road is the rim of a wheel for which other major expressways provide the spokes.

The four major routes under construction or planned are the Congress, Northwest, South, and Southwest Expressways.

Full length of the Congress Expressway will be open to traffic this fall. Completion of the 3.5-mile center section will remove the worst traffic bottleneck in the Chicago area. At the west end, a massive interchange connects Congress with the Tri-State and East-West Toll Roads. At the east end, the eight-lane depressed freeway passes beneath the U. S. Post Office building and connects with underground Wacker Drive and surface streets south of the Loop.

One of the busiest traffic interchanges in the world will be the connection of Congress Expressway with the Northwest and South expressways. It is known locally as the Halsted Street Interchange.

The median of the Congress Expressway carriers rapid transit, an extension of Chicago's West Side Subway. Highly successful, it was the first major rapid transit line to be built in conjunction with an expressway (ENR Aug. 20, 1959, p. 24). This approach, which has



Expressways

First stage integrated highway network has cost $1.5 billion.

attracted worldwide attention, greatly increases passenger carrying capacity of the right-of-way without greatly increasing the cost. On Congress, estimated construction costs for the rapid transit line were about one-fifth of the total.

Also scheduled for completion this year is the Northwest Expressway, which will extend from the Halsted Street Interchange to a connection with the Tri-State and North Illinois Toll Roads. On Chicago's near north side traffic will enter and leave the Northwest route by means of a new bridge and a pair of one-way streets—Ohio and Ontario. A connection is provided with the southern end of Edens Expressway. At its outer end, this route will provide direct access to O'Hare Field, Chicago's jet airport.

A project of extreme complexity—both as to design and construction—the Northwest route has many notable features. Two of the most interesting are reversible lanes for part of its length and provisions for rapid transit.

From its connection with the Edens Expresway the Northwest route provides for ten lanes of automobile traffic, four outside lanes in each direction. The central section of the expressway is occupied (see drawing) by two reversible lanes for automotive traffic and a pair of fixed rail rapid transit tracks.

To handle peak traffic loads, the two extra highway lanes will be made fully reversible by an elaborate system of signing and warning devices. Rapid transit tracks are an extension of the Logan Square branch of the Chicago Transit Authority's system. Extension

of this line to O'Hare Field is planned.

Next in line to be completed is the South Expressway, from the Halsted Street Interchange south to connections with the programmed Southwest route, the Calumet Skyway, and the Calumet Expressway. Delayed by several factors —among them a long-standing controversy over a bridge across the south branch of the Chicago river—this route will open to traffic in 1962. It provides access to Chicago Regional Port District's sprawling Calumet Harbor.

Provision is being made in this route for rapid transit tracks in the median. Unique in U. S. expressway design is the "dual-dual" system used for a portion of its length (ENR Jan. 15, 1959, p. 25). In this section, the expressway will have 14 traffic lanes—seven in each direction, four for the inner expressway and three for the outer "collector-distributor" expressway (see drawing). Vehicles entering the collector-distributor roadways will have half a mile or so to adjust speeds, accelerating to enter the inner expressway and decelerating to enter local service roads.

West leg of the South Expressway will join the Tri-State Toll Road and go beyond to Interstate 80, now under improvement by the Illinois Division of Highways. County authorities have begun to acquire right-of-way for this route, with completion scheduled for 1965. Programmed but not yet started is the Southwest Expressway, which will connect the South Expressway with the Tri-State Toll Road and Interstate 55 (US66). Target date for its completion is 1966.

An important connector in the southern end of Cook County is the Moline Expressway, programmed but not yet started.

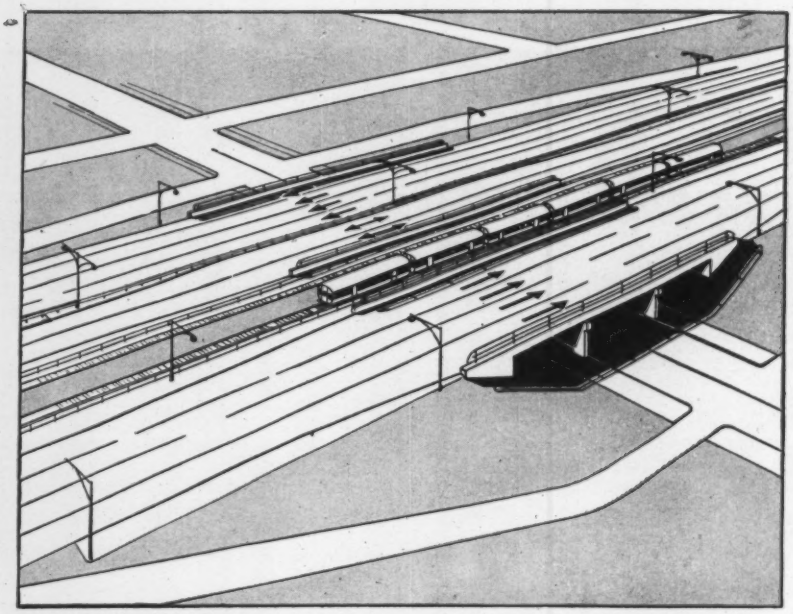
Four major agencies—City of Chicago, Cook County, Illinois Division of Highways, and the U. S. Bureau of Public Roads—have shared costs of the program. At this stage, nearly 75% of the money has come from state and local sources, only 25% from the federal government.

Now, what about the future?

Key to future planning to meet transportation needs is the Chicago Area Transportation Study. It was established late in 1955 by the City of Chicago, Cook County, and the State of Illinois, in cooperation with the Bureau of Public Roads. The study is financed jointly by these four governments and acts in an advisory capacity to them.

Task of the Study is to analyze present travel behavior, forecast future requirements, and devise a long range plan for highways and mass transportation facilities. Work of the Study will result in three major reports, all scheduled for publication this year.

The first of the three—released in January—reported on detailed uses of land and buildings in the 1,236-sq-mile study area and gave the results of surveys of the amount and characteristics of daily travel.



NORTHWEST EXPRESSWAY has two reversible lanes to handle peak traffic movements and double-track rapid transit line in the median.

The second report, expected this summer, will forecast travel requirements through 1980.

The final report, scheduled for next fall, will present criteria for planning, including standards for transportation facilities and for servicing the various land uses in the area. Plans for express highways and rapid transit facilities will be developed and tested. Benefits will be weighed against costs, tax requirements will be estimated and financial feasibility measured.

Recommendations of the study report are expected to supplement the Development Plan for the Central Area of Chicago (ENR Sept. 4, 1958, p. 23), formulated by the Department of City Planning in 1958. It provides for many long needed improvements, including modern transportation facilities. Comprehensive recommendations are made for a traffic plan, automobile parking, extension of the rapid transit system, railroad terminal consolidation, a transportation center, and improved methods of circulation for vehicles, pedestrians, and freight within the central commercial district.

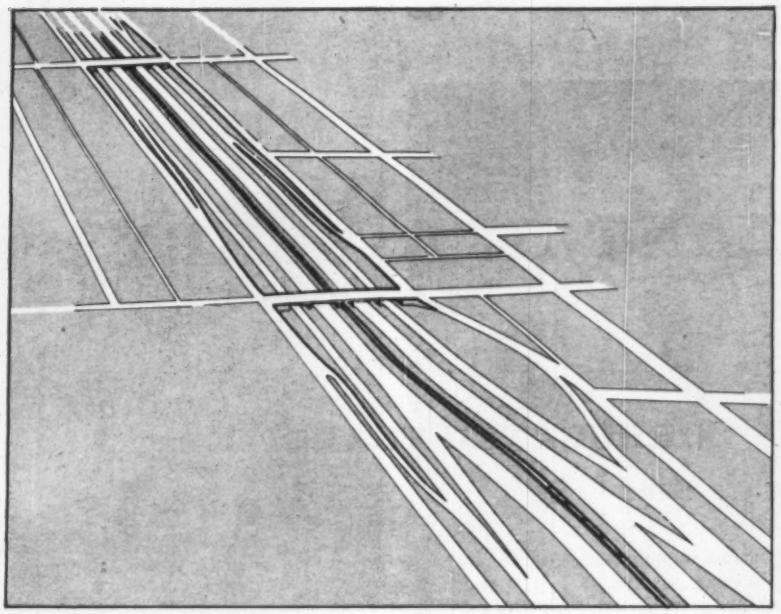
The traffic plan for the central area uses the existing comprehensive expressway plan as a major framework, proposes certain refinements and adds a distributor roadway system around the central commercial district.

Also in the picture is a comprehensive superhighway plan, developed by the Department of Public Works in 1945, which advocates several expressways not in the present program. These include extensions of Lake Shore Drive both north and south, a connection of the south end of Lake Shore with the South Expressway and a Crosstown Route running north and south at California Ave (2800 West), with connections to the Northwest, Congress and Southwest Expressways.

Many other proposals have been made by various individuals and groups, including those for an extensive system of "junior expressways" to serve as feeders for the integrated expressway system, a number of elevated highways, among others. None of these will

These men play

GEORGE L. DEMENT heads Chicago's Department of Public Works.



SOUTH EXPRESSWAY has "dual-dual" design with outer collector-distributors feeding into and out of high-speed inner lanes.

jell until after the study group's report.

Meanwhile, improvements in the city street system continue on a planned basis. A system of "preferential streets" —key arterials—has been designated and is being improved. Key grade separation structures and bridges are being built as funds permit. The city's capital improvements program schedules $64 million for these purposes in funds to be obligated during 1959-63. County roads also are being improved on an orderly basis, with emphasis on key arterial highways.

An outstanding phase of Chicago's attack on highway transportation problems is its construction of city-owned and operated parking garages and lots. Started in 1952, the program has been financed by $41 million in revenue bonds. The combined capacity of multi-story garages and parking lots provided under a four phase program essentially completed last year is about 14,500 cars.

The 1959-63 capital improvements program calls for a fifth phase in the program, representing an expenditure of some $2 million. The central area development plan advocates the construction of additional peripheral parking terminals in connection with the proposed ring roadways; it also proposes that study be given to construction of major parking facilities on air rights of the ring roads.

In March, the chairman of the Chicago Transit Authority Board proposed for public discussion a sweeping $400-million, 20-year program based upon coordination of mass transit, commuter railroads and private automobiles.

The program tied together plans proposed previously by CTA and added a new proposal for the establishment of ten garages at heavily used suburban stations of the North Western, Burlington, Illinois Central, South Shore and Rock Island commuter railroads. Major points in the proposed program:

- Construction of sub-street arcades joining downtown streets and office buildings, with direct connections to sub-street transit lines.
- Establishment of multi-story parking garages at outlying rapid transit stations joined by ramps to adjacent expressways or city streets.
- Extensions and improvements of CTA's rapid transit service through that agency's previously proposed 20-year, $315-million program (ENR Aug. 20, 1959, p. 24).
- The new proposal for construction of parking garages at suburban commuter railheads.

Proposed is a combination of public and private financing. Some idea of the magnitude of the task may be gleaned from the fact that since 1938 three subways have been added in Chicago at a total cost of $102 million, for an average rate of expenditure of $5 million annually. The new plan calls for a $15-million annual spending rate.

Total expenditures of $13.4 million for rapid transit were scheduled by the City of Chicago during 1959-63; this includes the city's share of the cost of providing space for rapid transit tracks in the medians of the Northwest and South Expressways.

key roles in Chicago's expressway program . . .

WILLIAM J. MORTIMER builds roads for growing Cook County.

ROGER NUSBAUM represents state Division of Highways.

J. DOUGLAS CARROLL, JR. directs Chicago Area Transportation Study.

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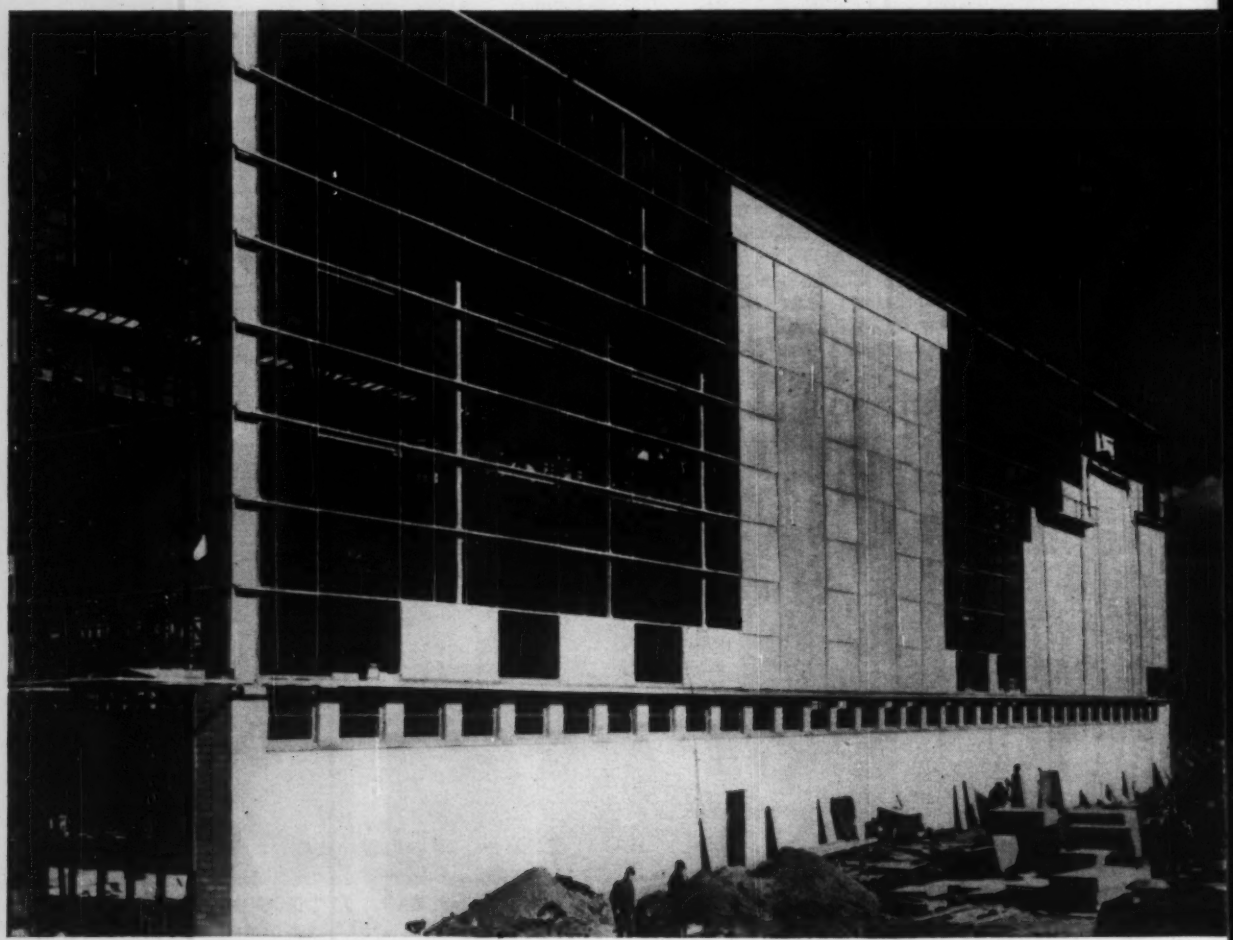

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Irrigation Line Is

PIPE diameters vary from 18 to 33 in.

The Bureau of Reclamation is using for the first time concrete pipe prestressed without a steel inner shell. The pipe is for a 4½-mile stretch of an irrigation distribution system in California's San Joaquin Valley.

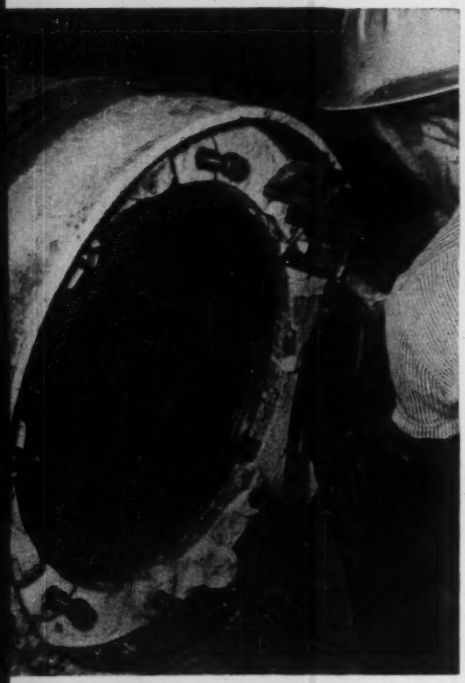
The pressure pipe involved is used for heads ranging from 150 to 200 ft. and differs from other concrete pipe previously used for high pressure service in that it does not have a steel cylinder cast into the concrete. Pressure resistance is developed by winding high tensile steel wire around a dense concrete core. Methods of casting the core and wrapping it with steel wire were developed by Cen-Vi-Ro Pipe Corp., successful low bidder on the $1.2-million contract.

The Bureau of Reclamation is building the distribution system for the Tea Pot Dome Water District, which includes 1,700 acres of rich citrus land near Porterville, Calif. In addition to the non-cylinder prestressed concrete pipe the project includes three miles of conventional reinforced concrete pipe for pressures up to 125-ft head. It also includes nearly nine miles of cement asbestos pipe for smaller (16-in. and below) distribution lines, four pumping plants and an equalizing reservoir.

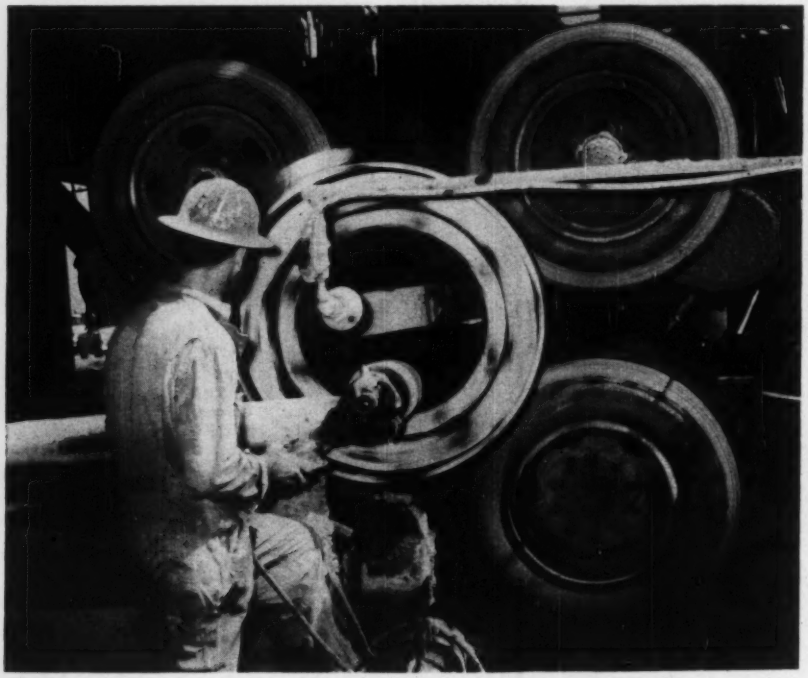
• **Alternate bids taken**—In calling for bids on the work late last year, the Bureau of Reclamation permitted contractors to bid on any of four different kinds of pipe. Alternates were (a) mortar lined and coated steel pipe, (b) concrete pipe with thick walls and extremely heavy reinforcing cages, (c) concrete pipe including pre-tensioned steel cylinders and (d) non-cylinder prestressed concrete pipe. The 200-ft maximum head made special consideration of such alternates desirable.

Cen-Vi-Ro Pipe Corp., bidding on non-cylinder pipe, won the contract with a figure of $1,208,662—barely under the second low bidder, W. M. Lyles Co., Avenal, Calif., which bid $1,235,149. Highest of nine bids was $1,451,004 and the Bureau of Reclamation estimate was $1,275,960.

• **Pipe manufacture**—Production of non-cylinder prestressed concrete pipe centers around a strong concrete core with 28-day strength averaging 10,000 psi. Such strengths are obtained by a centrifugal casting process developed by the contractor. In addition to spinning the pipe at carefully controlled high speeds, the process includes—as do other centrifugal casting methods—vibration at predetermined optimum frequencies. It also includes pressure-rolling the inside as the concrete is being cast. The concrete has a water-cement ratio of 0.35 or less and little or no slump.



RODS are prestressed before core is spun.



SPIN CASTING combines centrifugal force with roller compaction.

Prestressed Concrete Pressure Pipe

Aggregate is batched with 70% coarse aggregate and 30% fine aggregate. The mix is 6-sack. Type II cement is used for this particular application.

• **Process**—First step in manufacturing the 12-ft-long pipe sections is to prepare the forms. Longitudinal prestressing rods are used to eliminate discontinuity at the ends of the pipe which might result in cracking of the core during the circumferential wire-wrapping process.

Eight ⅜-in. rods are used for longitudinal prestressing regardless of the diameter of the pipe. Sizes on this job range from 18 to 33 in. dia although the pipe can be made in much larger sizes and, for that matter, to resist much higher heads—up to 1,000 ft. Rods are stressed by hydraulic jacking to just below the yield point, or about 70,000 psi. They are anchored into a "she" bolt at each end set to form a recess in the pipe. The bolt is removed after casting and the rods are held in place by a semifinished machine nut cast into the concrete. The bolt hole is then filled with mortar so that the rods are not exposed.

Next step is casting the core. This involves centrifugal spinning, vibrating and roller compaction of the inside as the pipe is spun. When the core form is placed on the spinning machine, the roller is inserted through the form extending out each end. Attached to each end of the roller are 10,000-lb hydraulic rams that hold the roller against the freshly placed concrete. The concrete mix is fed by a rail-mounted hopper and conveyor belt that is inserted and retracted to deliver concrete where needed within the form.

Rolling, in addition to making the concrete dense, firmly packs the bell end of the pipe with concrete. Final step is a period of high-speed spinning.

The freshly cast pipe core is held in a steam cure for about six hours before the forms are stripped. After form stripping a curing period of three or four days is needed to attain the 6,000-psi strength necessary for prestressing.

The wire is cold-drawn, high-carbon, high-tensile steel (ASTM spec. A227). The 8-ga wire (0.162 in. dia) is stressed to 150,000 psi during wrapping. Tensile stress is controlled closely with the aid of automatic stress recording.

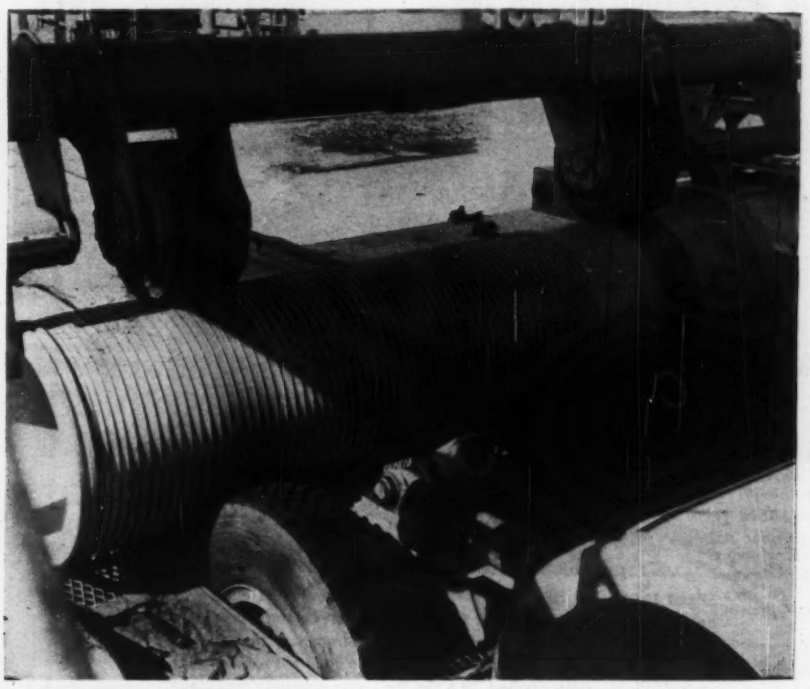
Anchorage devices are cast into both ends of the concrete core. After the pipe is prestressed, each length is subjected to hydrostatic pressure testing.

Final step in the pipe manufacture is mortar coating at least 1 in. thick over the wire. Machinery used for this purpose applies mortar on the pipe at high velocities (nearly 7,000 fpm). The mortar coat application is followed by several days of water curing.

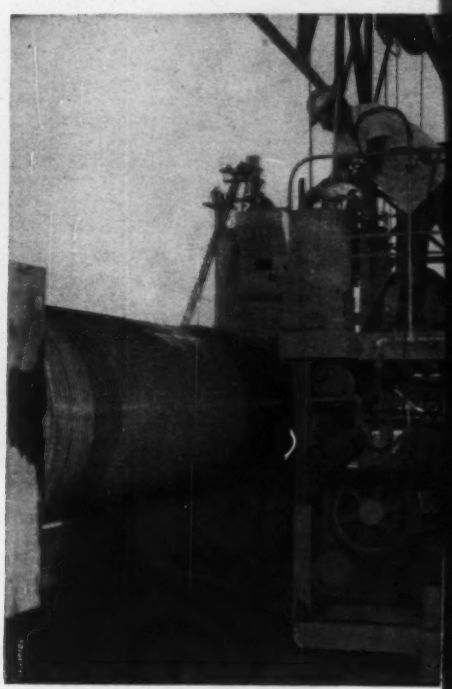
No honing or other shaping is needed for the mating surfaces. The joint is formed by a single rubber gasket "O" ring with the gasket slipped over the spigot end before the joint is made.

The Tea Pot Dome distribution system is one of the last to be built that takes water from the Central Valley Project's Friant-Kern Canal. Peak construction effort on other distribution systems occurred some nine years ago (ENR Oct. 11, 1951, p. 34). One of the reasons the Tea Pot Dome work was not undertaken until recently is that well supplies were available in sufficient quantity to service the land. But a series of dry years has reduced substantially the water available from the wells. The supplemental water provided by the Friant-Kern Canal is badly needed in some areas to help ripen the orange crop this fall. Also, it will guarantee high production in years to come.

The pipe was cast at the Cen-Vi-Ro plant some 40 miles from the Tea Pot Dome Water District. Mike Herrera is general superintendent on the project for Cen-Vi-Ro. R. A. McNeill is resident engineer for the Bureau of Reclamation. Tea Pot Dome Water District is represented by consulting engineer Fred A. Strauss of Stetson, Strauss & Dresselhaus, Inc., Porterville, Calif.



CONCRETE CORE is prestressed by wire under high tensile stress.



PRESTRESSED PIPE is mortar coated.

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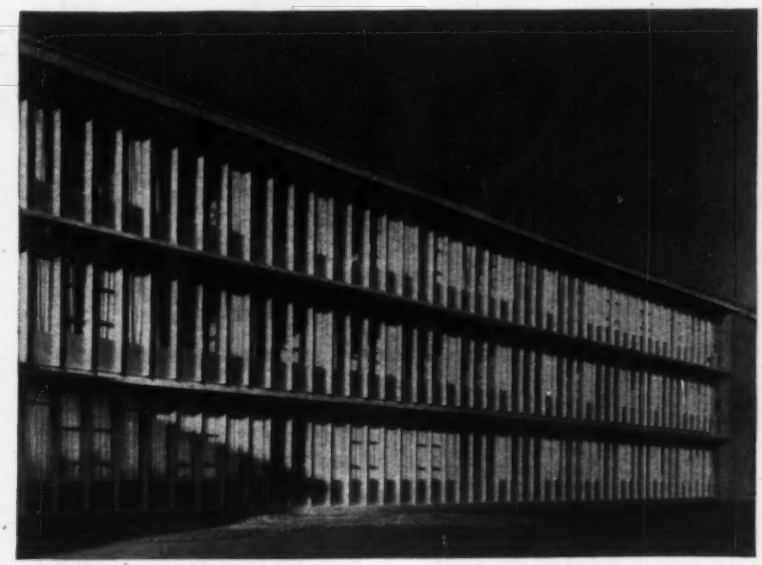

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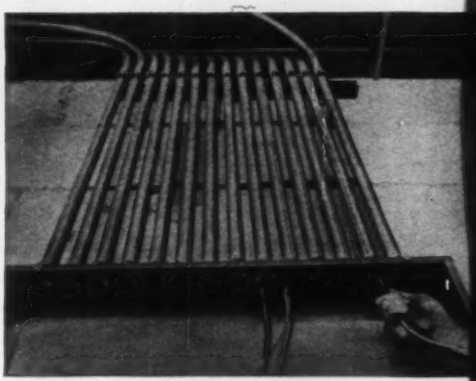

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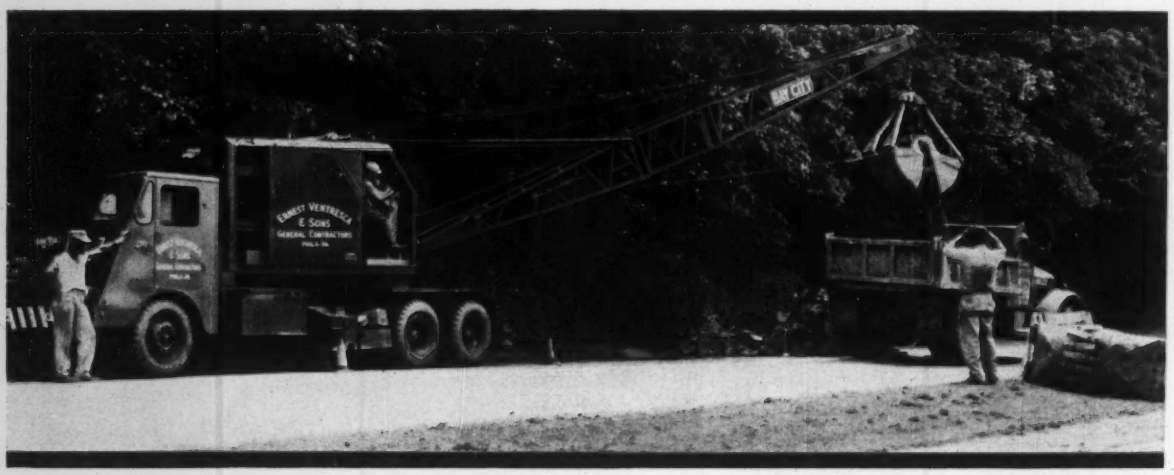
CraneMobile features are "performance-proved" not only on "bread and butter" earthmoving jobs like this but on high, heavy lifts and long boom work as well. Accurate setting of high steel or precise



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Florida Spans: Made in Louisiana

By William E. Dean

The joint venture for the $8-million Pensacola Bay Bridge in Florida is using the same mass production precasting and prestressing techniques and equipment it used on the Lake Pontchartrain Bridge in Louisiana (ENR Aug. 30, 1956, p. 30), barging the heavy precast elements about 200 miles from the casting yard at Mandeville, La., to the bridge site. Brown and Root, Inc., and T. L. James, Inc., Houston, builders of the Lake Pontchartrain span, won the bid for the Pensacola Bay job against alternate designs.

Many of the structural components of the Pensacola bridge are very similar to those used at Lake Pontchartrain. These include 54-in. prestressed concrete cylinder piles; precast concrete pile bent caps; and precast, prestressed monolithic deck units spanning 60 ft and weighing about 156 tons each.

About 3,000 ft of the bridge rests on cylinder piles 164 ft long. They are believed to be the longest piles of this type ever used in U. S. bridge construction.

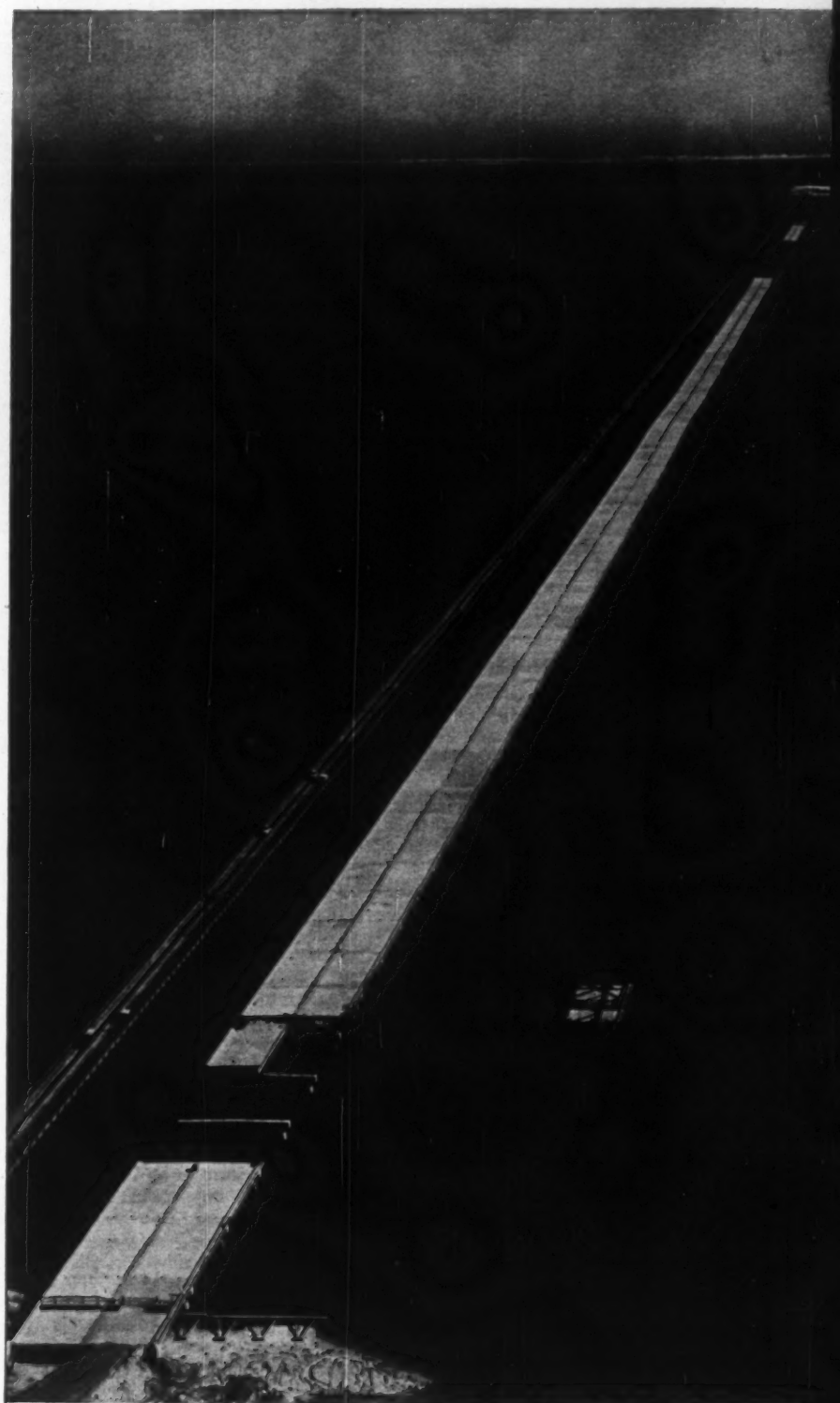
Most of the bridge's three-mile length is of low trestle type construction. One principal channel for navigation requires horizontal clearance of 125 ft and vertical clearance of 50 ft above mean high water. This fact led engineers to design the bridge in three parts.

Part 1, at the channel, consists of three spans of continuous welded steel plate girders in lengths of 123, 154, and 123 ft, supported by pile founded piers built in open cofferdams.

Part 2 consists of two 900-ft lengths, on 4% grade on each side of the channel, connecting the channel span and the trestle on each side.

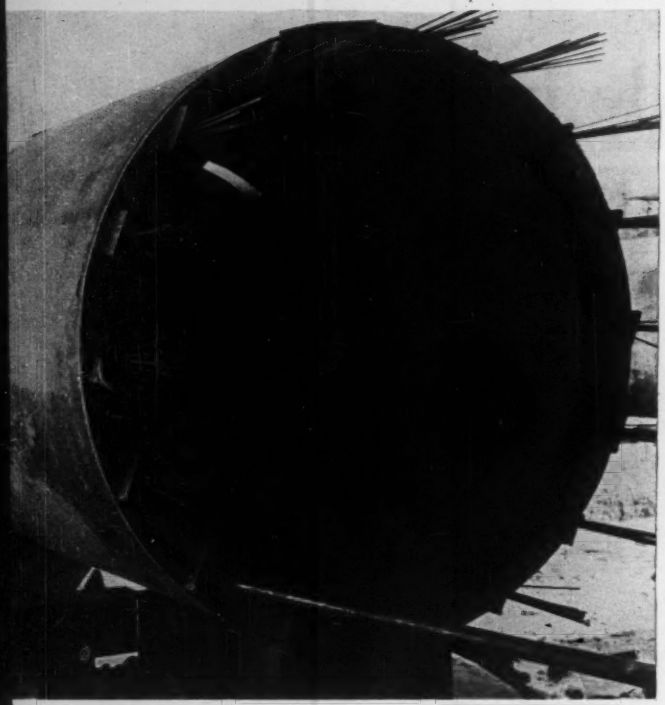
Part 3 is made up of the two concrete trestles—6,600 ft and 6,780 ft long—that connect Part 2 with the north and south shores of Pensacola Bay.

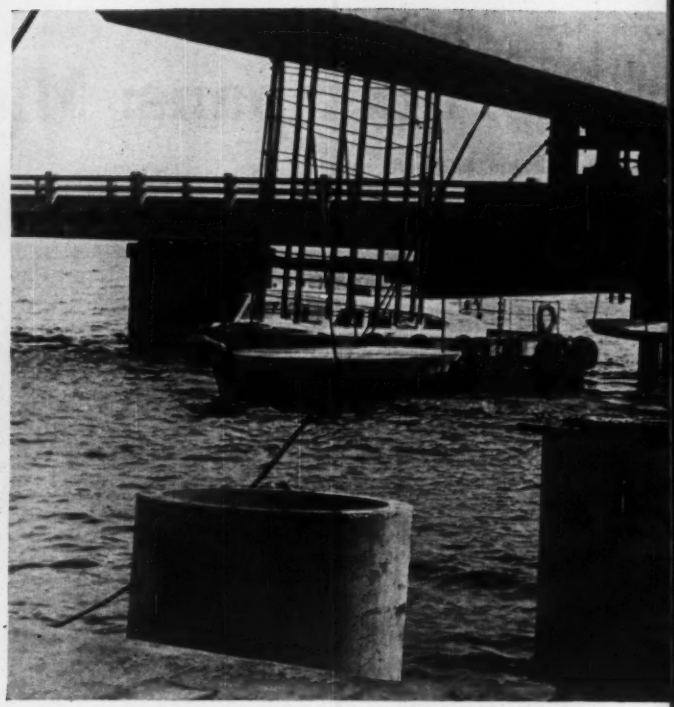
The bridge is 60 ft wide between handrails. Twin roadways, 26 ft wide, are separated by a 4-ft concrete median. Safety curbs, 2 ft wide, are provided on each side. Design live load is H20-S16. The bridge is built alongside, and replaces, an obsolete structure with 20-ft roadway that carries traffic with



Prestressed parts were barged from Lake Pontchartrain plant.

Mr. Dean is Florida's Assistant State Highway Engineer (Structures) and one of the country's outstanding bridge designers. He is a pioneer in the development of prestressed concrete bridges of the type described in this article.



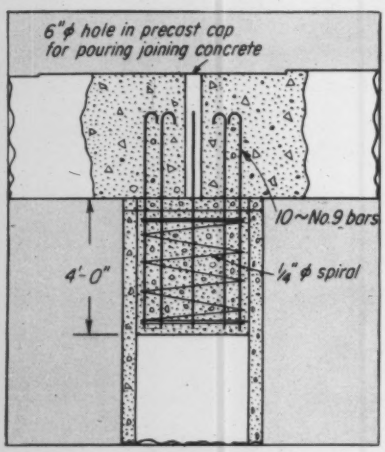


Post-tensioned piles are "longest" bridge piles. **Precast cap goes on with wood disks underslung**

seasonal variations from 14,000 to 25,000 vehicles per day.

Water depth across the span is generally from 15 to 20 ft, with maximum of about 30 ft. Below the bottom of the bay, from 40 to 80 ft of silty muck overlies deposits of sand and consolidated shell. The old bridge, built in 1931, was founded on 16- and 18-in. concrete piles from 70 to 100 ft long. Serious and extensive settlement of the old structure indicated that these pile lengths were inadequate.

Before designing the new bridge, engineers conducted an extensive soil exploration program, including 40 borings to depths as great as 150 ft, 23 test piles and four pile loading tests. They found highly variable foundation conditions.



Pile bent cap-to-pile tie detals.

Most important factor: although layers of sand and shell from 2 to 10 ft thick were found at comparatively shallow depths, these were often underlaid by deep layers of very soft material. These conditions dictated the use of long piles.

For the trestle (Part 3) State Road Department bridge engineers chose a basic design of 60-ft spans with roadway crown 16 ft above mean high water. The basic design contemplated use of eight Type III AASHO-PCI standard precast, prestressed concrete beams with a 7-in. cast-in-place deck founded on bents of 24-in. square prestressed concrete piles. They prepared alternate superstructure and substructure designs using the same overall dimensions.

The alternate superstructure consists of two precast, prestressed units of monolithic beams and slab. The alternate substructure uses 54-in. cylinder piles. In bidding, either superstructure alternate could be combined with either substructure. On the grade approaches to the channel, designers continued trestle construction to the height where slenderness ratios of the 24-in. piles demanded a stiffer substructure than the simple bents.

For the channel approaches (Part 2), engineers selected pedestal type piers supported by clusters of piles cut off just above the water line. Alternate designs were prepared using 60- and 90-ft spans. The 60-ft spans could be either of the alternates used in Part 3, while the 90-ft spans used AASHO-PCI Type IV prestressed beams with 7-in. deck slab. Either the 24-in. square piles or the 54-in. cylinder piles were allowed as supports for the piers.

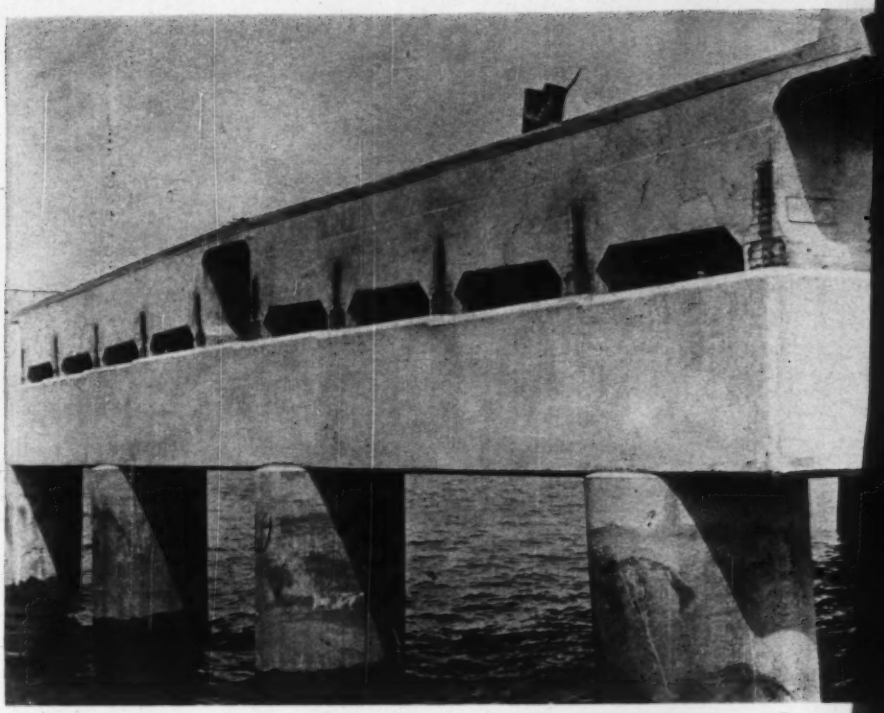
Design loading for the 24-in.-square piles is 60 tons and, for the 54-in. cylinder piles, 150 tons. These loads resulted in the use of either four cylinder piles or ten square piles; bidding quantities for the respective alternates were in almost exactly the same ratio. In design, the cylinder piles were considered only as substitutes for the square piles. Had the maximum stiffness potential of the cylinder piles been given full advantage in Part 2, cylinder pile bents might have replaced some of the pedestal piers.

No alternates were considered for the channel spans.

The low bid was the only one of five based on either the precast monolithic units or the cylinder piles. The monolithic spans were bid 25% lower than the lowest price for the beam and slab design. Two bidders, however, priced their proposed substructure on 24-in. piles lower than the cylinder piles, but the superstructure saving was more than enough to compensate for the differential.

The low bid of $8,136,792 was about 17% below the engineer's esti-

to retain concrete plug.



Prestressed monolithic units span 60 ft to form bridge deck.

mate. The 224 60-ft spans comprising the trestle account for 86% of the bridge length, but only 64% of the cost. For the low bid, unit superstructure cost for the trestle is $2.93 per sq ft and the substructure unit cost (with pile lengths averaging 104 ft) is $3.49 per sq ft, for a total cost of $6.42 per sq ft.

The change from trestle design to the other types for the channel spans and approaches is due solely to the necessity of providing for navigation. An analysis shows the increment of cost due to navigation to be $1,727,543 over a length of 2,200 ft.

Each concrete cylinder pile has 54-in. outside diameter and 5-in. wall thickness. They are cast in 16-ft lengths by the use of special spinning equipment. Each pile is cast with 16 longitudinal ducts for prestressing cables spaced equally around the circumference at mid-section. Each also has ¼-in. spiral reinforcing.

The piles are post-tensioned by being tied together like beads on a string to the desired length. Each of the 16 prestressing cables is made up of twelve No. 6 wires (0.192 in. dia). Initial cable tension is 160,000 psi.

Barged to the bridge site, piles are handled and driven by floating rigs. Each bent has four piles. Pile length varies from 80 to more than 160 ft.

The contractor mass produced the precast pile bent caps by conventional procedures, using collapsible metal forms. Each cap is 59 ft long, 3 ft 6 in. wide, and 4 ft high. Ten No. 9 vertical bars are anchored in the cap over each pile; they extend 4 ft down into each pile and tie the cap and piles together. After the cap had been placed on top of a bent, concrete is forced through a 6-in. hole in the cap into the top 4 ft of each pile.

Two identical precast, prestressed monolithic deck units comprise the width of the bridge. Each deck unit is 60 ft long and has an overall depth of 4 ft 4 in.

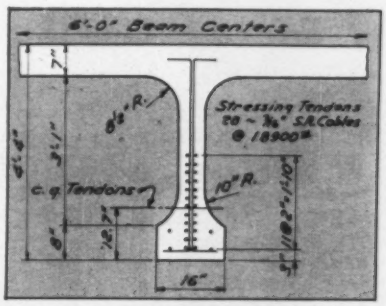
Each deck unit has five pretensioned girders cast integrally with the 7-in. deck. Stressing tendons are 28 7/16-in. steel cables per girder, pretensioned to a load of 18,900 lb each.

Engineers gave careful consideration to camber in designing the deck units. Initial inverse camber must be provided in the casting to allow for elastic camber at release of the stressing force and for additional camber due to creep. To minimize the camber a rather high center of gravity of the stressing force was used. Designers used more stressing force and a greater number of cables than they would have if the stressing was concentrated in the bottom flange; the eccentric moment and amount of camber were correspondingly reduced.

Spans were cast with an initial sag of ½ in. Upon transfer of the stressing force, initial camber of about ⅜ in. occurred. Camber growth of ⅛ to ¼ in. has come during the first six months of slab life, after which a stable condition seems to have been achieved. A careful check of slabs that have been cast for ten months shows a profile varying from no camber up to a maximum of ¼ in.

Since the contractor began setting the pile bent caps and deck units progress has been at the rate of five completed spans (300 ft of four-lane bridge) per week. Pile driving has been maintained ahead of these operations at all times. Completion of the bridge is expected in September.

The general contractors are building the project through their subsidiary company, Prestressed Concrete Products Co. of Mandeville, La. The New Orleans office of Pittsburgh Testing Laboratories has inspected all plant operations for the owner. Design and supervision of field operations is by the engineering staff of the Florida State Road Department.



Typical interior beam details.

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New hangar at Paris' Orly Airport provides . . .

. . . 129,000 sq ft of unobstructed floor space beneath . . .

Long Cantilever Roof for Jets

A new hangar for Paris' Orly Airport, officially inaugurated June 29, is claimed to be the world's largest. Its purpose is to provide the unobstructed floor space needed for big-jet maintenance. It's big enough to park six Boeing 707s or eight Caravelles in a single wing-tip line.

The hangar has a clear opening 984 ft long and 49.2 ft high. The roof cantilevers 125 ft and an additional 46 ft in back of the cantilever support posts brings the hangar's total depth to 171 ft. The hangar floor—129,000 sq ft—is completely free of obstructions.

Two earlier hangars (ENR Oct. 27, 1955, p. 34) with the same 171 ft depth, but with smaller clear openings —712 and 535 ft—have proved the success of the design. These two older hangars are shown in the upper right corner of the upper picture of the new hangar.

Ten trusses, cantilevered from stayed steel columns, are the major roof-carrying members. Truss chords are welded box members. These cantilever trusses, spaced 82-ft c-c, carry longitudinal trusses about 30 ft apart; the secondary

(*Continued on p. 52*)

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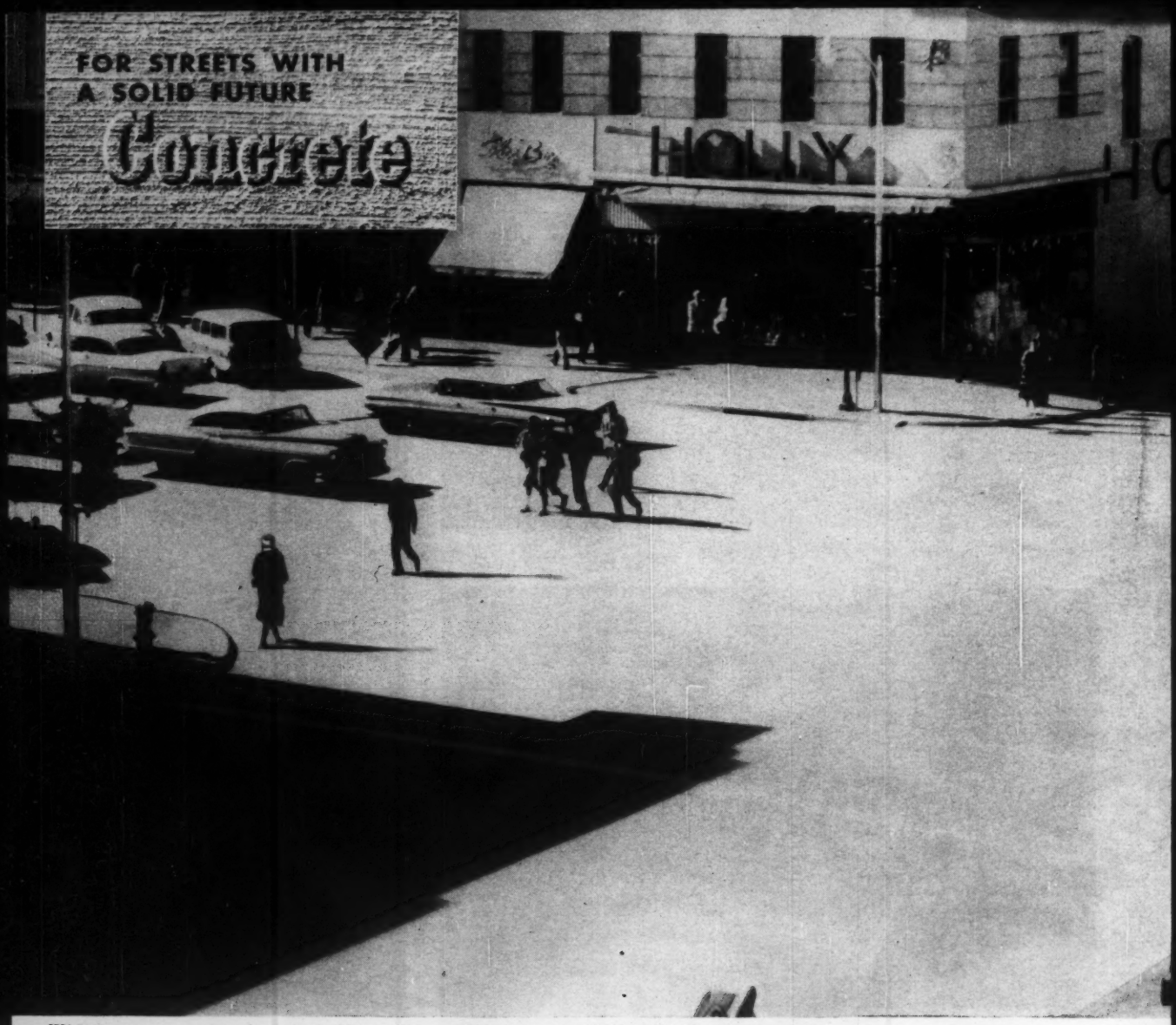

With the new streets—curbs and sparkling, silicon carbide-impregnated sidewalks of modern concrete

For 43 blocks of downtown streets, ...the pavement built to stay put

"The 'new look' of our downtown business district is causing plenty of excitement in and around Abilene!"

Says HENRY NABERS, *Abilene City Manager*

"Our bright new concrete streets and sidewalks are helping to bring shoppers back downtown. Business has really improved since the dedication ceremony.

"The durability of concrete and the low upkeep costs make it the best investment for our downtown area. The good experience with Abilene streets paved with concrete as far back as 1924 helped convince us of that."

In an all-out fight against "downtown blight", Abilene, Texas, modernized the entire business district with all new concrete streets in one giant renewal project.

Abilene shoppers and shopkeepers alike can expect a whole lifetime of enjoyment from their attractive, new concrete streets. Pavement is six inches of portland cement concrete on a 6-inch soil-cement subbase.

The new streets won't be blocked off for expensive surface build-up treatments every few years or torn up for

Abilene chose CONCRETE for 50 years and more!

major repairs. Even on the hottest days concrete doesn't get soft, tacky or slick. Traffic can't push its solid surface into ripples and washboards.

There are no "moving parts" in concrete to cause hidden wear. In fact, concrete grows stronger year by year. That's why engineers predict today's modern concrete pavements will far outlast any other type, serve 50 years and more!

Concrete pleases taxpayers, too. Maintenance costs run so low that the moderate first cost isn't just a down payment. Even on street lighting money is saved. Concrete reflects light, so fewer fixtures are needed. City electric bills go down.

Cities everywhere with urban renewal problems are going to concrete. It's the first big step in an effective modernization program.

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WEATHER-RESISTANT! These are not regular "paper" pans. Jay-Pans are made of "freezurboard"—a patented, heavy-duty asphalt-impregnated material similar to asphalt roofing, which is saturated with asphalt. Millions of square feet of federal government, state, and private projects have proved the reliability of Jay-Pans under all weather conditions.

ALL SIZES! Tapered, adjustable, long-span, waffle, or cored slab, Jay-Pans give a clean job . . . come in all standard sizes as well as practically any other size you need to fit your most economical module.

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trusses extend out 123 ft beyond the last cantilevered truss to each end of the building. Steel purlins carried by the longitudinal trusses support a corrugated steel roof deck.

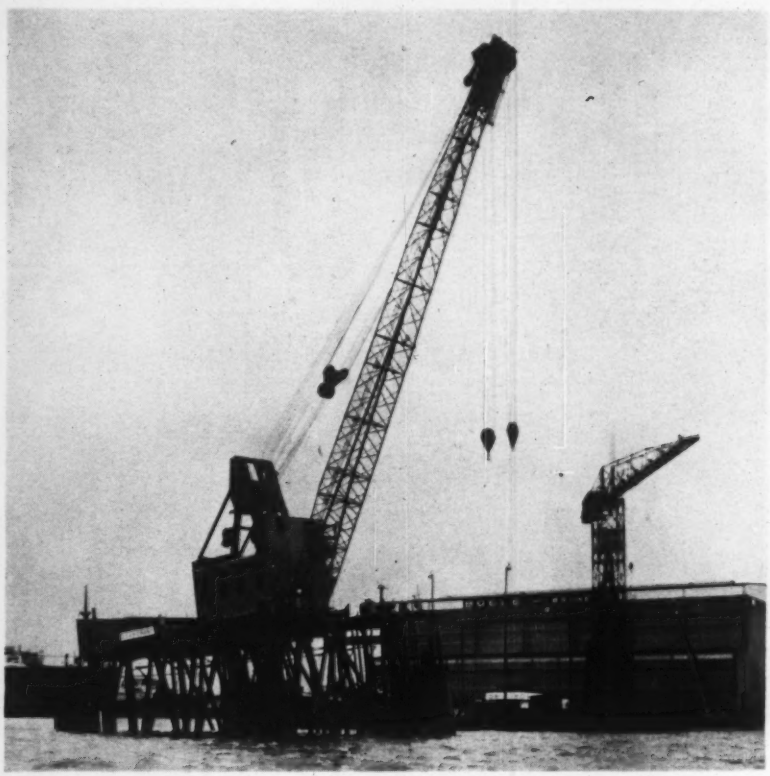
Bracing at the front of the hangar consists of two vertical trusses and a horizontal truss spanning between the ends of the main cantilevers. Three sets of tracks along the bottom of the vertical end trusses guide the tops of the hangar's 12 sliding doors—each is 82 ft wide and weighs 30 tons.

The sloping steel backstays of the cantilever roof are bedded in concrete anchor blocks, 18x13 ft and 13.1 ft deep.

The hangar floor is 12-in.-thick concrete.

The rear hangar wall is shared with annex buildings. Supplementary structures cover an area 968 ft long by 164 ft wide. One building houses workshop; another is a six story office building.

The $6-million project took less than two years to complete. Aeroport de Paris used its own design and building staff for the hangar.



Floating Crane Sinks Itself

A Dutch floating crane that looks like an offshore drilling platform sinks itself to do its job.

The base of the floating structure is a 78x78x8-ft pontoon. Four cylindrical dry caissons are installed on the deck of the pontoon (one at each corner) to house electrically driven ballast pumps and manifolds. When the pumps flood the ballast tanks built into the pontoon, the entire rig sinks to rest on the sea bed. This support is expected to eliminate the effects of waves and currents on the rig. Emptying the ballast tanks refloats the structure.

The working deck supporting the crane is located 30 ft above the top of the pontoon.

The rotating crane on the working deck has a 130-ft boom capable of handling 15 tons at a 120-ft radius. A two-cabin deckhouse contains a galley, sanitary facilities and the generator.

After proving trials are completed, the crane will be towed from the outfitting yards of its maker, N. V. Boels Scheepswerven en Machinenfabrik, Bolnes, Holland, to the mouth of the River Escravos in Nigeria. It will be used to build a six-mile-long breakwater. During the voyage the crane will be stowed in four parts on the deck.

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American Bridge Division of United States Steel

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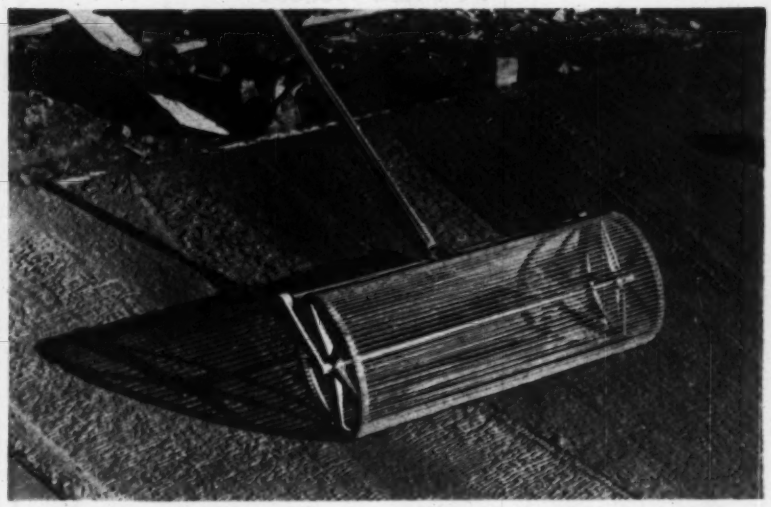
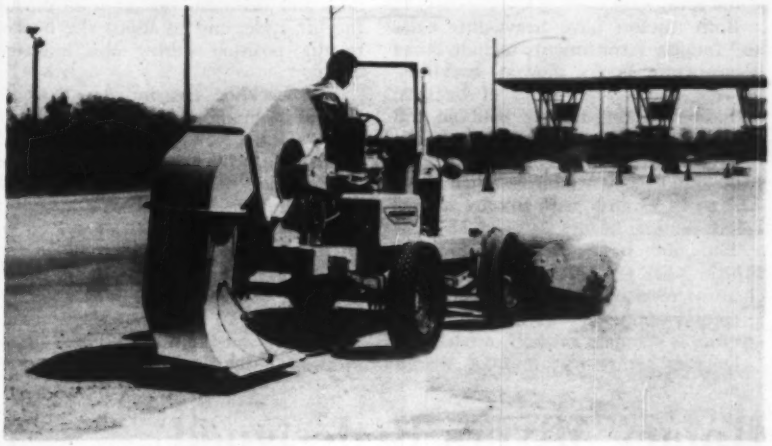


Roller Speeds Concrete Finishing

The Jitterbug Roller speeds and eases the work of concrete finishing, according to the manufacturer.

The roller takes the place of a float. As the operator pushes the roller out over the concrete, 90 steel rods, forming a 35-in.-long cylinder wall, push the larger aggregates just below the surface to make it ready for trowelling. A 12-ft magnesium handle enables operator to stay out of way of the troweller. GOLDBLATT TOOL CO., KANSAS CITY, MO.



New Broom Sweeps, Blows Clean

A self-propelled Sweeper-Blower for cleaning pavements for guide line marking travels at up to 50 mph. It has a range of eight speeds from 1 mph up.

The blower has 10,000 cu ft capacity generated by a large paddle type wheel, and is turntable mounted for right, left or center blowing. The nozzle can swivel 360 degrees, is manually adjustable for travel, and has hydraulic controls.

The 4 ft wide broom is available in either fiber or wire. It has five sweeping positions. When in maximum right or left sweeping positions, the broom sweeps an area more than 14 in. beyond the outer line of the front wheels. This permits the wheels to stay on the pavement when cleaning for outer edge line marking. The broom raises and lowers hydraulically for travel and for sweeping adjustment. TOPEKA HIGHWAY MOWER, INC., P.O. BOX 720, TOPEKA, KANSAS.

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Moline Tractor Line Expanded

Powered by a 206-cu-in. engine, the Big Mo 500 wheeled tractor develops 56 bhp on gasoline and 50 bhp on diesel fuel, at 1,750 rpm. The Big Mo 600 develops 60 bhp on gasoline at 2,000 rpm.

Both tractors have heavy-duty axles and frames. Attachments include dozer blades, crane hooks, mowers, backhoes, loaders, and several types of buckets, including ejector, trench, bellhole and material and snow buckets.

Five forward speeds on both the "500" and "600" models range from 2.63 to 14.57 mph, with the five reverse speeds ranging from 3.29 to 18.22 mph.

The 600 has a hydraulic reverse shuttle gear, while the 500 has a mechanical reverse shuttle. The 600 has a torque converter. Hydraulic power steering is standard on both models.

Double constant-running, direct-coupled hydraulic pumps are mounted at the rear and operate the loader, backhoe, power steering and other attachments.

The loader has a one-lever control to raise and maintain bucket level during the lift cycle, and to adjust the bucket to dig position during the lowering cycle.

The backhoe has individually controlled hydraulic outriggers. The operator's seat pivots with the boom and is offset to provide a complete view of the 190-deg swinging boom and the work area.

Loader bucket capacities are $\frac{3}{8}$ cu yd on the 500 model and $\frac{3}{4}$ cu yd on the 600 model. Lifting capacity is 2,000 lb on the 500 and 4,500 lb on the 600. Lift height is 10 ft 7 in. on the 500 and 10 ft 10 in. on the 600. MINNEAPOLIS-MOLINE, HOPKINS, MINN.

Rotary Mixers Redesigned

Major improvements have been made in the "Seaman" Pulvi-Mixer and Trav-L-Plant line of rotary mixers for soil stabilization and highway construction. Changes are said to increase functional performance and add new safety factors for operators.

Redesign of the hood and fenders has improved accessibility to all parts of the engine and drive system and has provided greater ventilation during operation. Also featured are a catwalk alongside the operator's station and improved visibility over hood and fenders.

Power steering on both machines has been improved to provide simpler upkeep and easier conversion in the field on models originally purchased with manual steering. An improved rotor transmission is used. Both front and rear wheels have been changed for better traction and flotation. New front wheels utilize 9.00 x 24 tires, a standard size more widely available. Rear wheels now accommodate standard 15.00 x 34 tires, or optional 18.00 x 26 size with diamond tread. AMERICAN-MARIETTA CO., CONSTRUCTION EQUIPMENT DIV., MILWAUKEE 1, WIS.

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SPRAYED "LIMPET" ASBESTOS is the *only* sprayed-on *fire-proofing* material whose fibres are 100% asbestos. It *alone* has a four-hour fire-rating for a minimum of ½" under a cellular deck—and for 1¾" direct to beams. (Underwriters' Laboratories, Inc.) In fact, **SPRAYED "LIMPET" ASBESTOS** has more *approved* ratings than any other sprayed-on fire-proofing material. It achieves the best *approved* ratings with the least material—without adhesives, without multi-layer spraying or pressing. It has no "or equal".

Get more details today . . . on the advantages of SPRAYED "LIMPET" ASBESTOS for acoustical treatment, insulation, and condensation control as well as fire-proofing. Write to Dept. B-1370 for this booklet. Keasbey & Mattison Co., Ambler, Pa.

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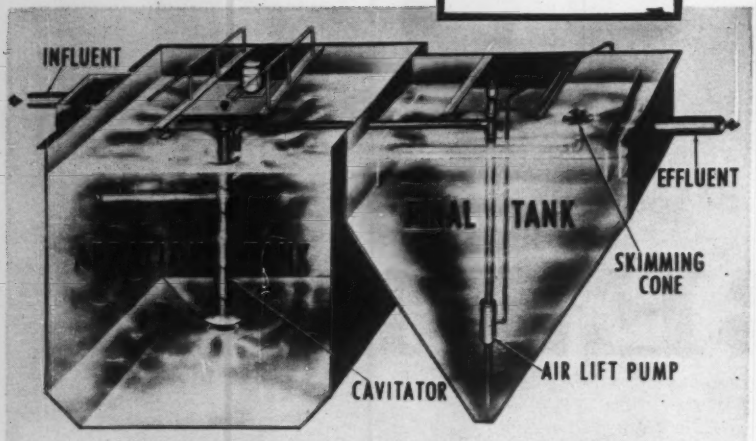

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These Yeomans prefabricated plants are built around the Cavitator which treats sewage by *aerobic digestion*. Standard systems are supplied in capacities from 2000 to 7500 gallons per day.

The Cavitator achieves a much higher oxygen transfer efficiency than other types of systems. Furthermore, it requires no blowers or compressors . . . no installation and maintenance of diffusion tubes or plates. There is nothing to clog. The simple mechanism requires only minimum attention.

When you buy a PC Cavitator plant, Yeomans can furnish a factory-trained engineer to supervise installation and train operators—taking up where the consulting engineer leaves off. The investment is further safe-guarded because each PC Cavitator plant incorporates Yeomans' 60 years of experience in handling sewage. Investigate its advantages today!

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. . . New Products

Hinged Hopper Wings Help Load Paver Finisher

Finger-tip controlled folding hoppers and steering control improvements are features of the redesigned Express and Suburban rubber-tired bituminous paver finishers.

Hopper wings are hinged at the conveyor line so that all material moves onto the conveyor when sides are raised hydraulically through simplified controls, which are standard equipment. The controls permit operator adjustment of "wings" for travel width clearance or for paving around obstructions.

Designed to reduce truck waiting time and permit additional operation between truck loads, the hoppers' folding feature is said to provide for a free and steady flow of bituminous mix to the conveyor and spreading screws.

Wheel-type power steering has been added to the Express Paver, while the smaller Suburban unit (previously equipped with wheel steering) now also has hydraulic power.

Also available is an optional screed level control that is automatic, and eliminates continual adjustment of the screed to match joints. Designed to travel on a previously placed mat or curb, the level control shoe has a swing-up feature and can be used on either side of the machine to anticipate surface irregularities and correct screed planing angle.

The Express Paver has an air control console. Mounted in front of the machine's steering wheel, it provides controls for traction clutch, conveyors and left and right conveyor-auger adjustment that sets automatic feed control and manual override. BLAW-KNOX CO., CONSTRUCTION EQUIPMENT DIV., MATTOON, ILL.

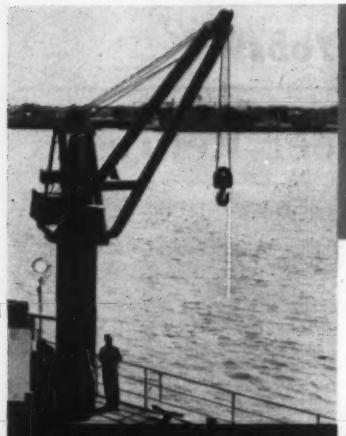
Hydraulic Power Pumps Deliver High Pressure

Four hydraulic power pumps which the maker says develop 10,000 psi continuous pressure are designed to drive rams, jacks, presses and similar hydraulic units.

The pumps are powered by a self-contained ¾-hp, 115-230 v, ac, single-phase, constant-speed capacitor-type electric motor. Pumping capacity is 150 cu in. per minute at pressures up to 150 psi with automatic change-over to 30 cu in. per minute up to 10,000 psi.

Usable oil volume in all four models is 260 cu in. Motor can be started under load, while ram is held in position under pressure. GREENLEE TOOL CO., ILLINOIS NATIONAL BANK BLDG., ROCKFORD, ILL.

ELECTRIC CRANES FROM 6 TO 250 TONS CAPACITY



Pedestal Cranes, 6 to 25-ton capacity, mount in small area — operate on commercial power.

LeTOURNEAU full-revolving cranes, in load capacities from 6 to 250 tons, are winning an outstanding on-the-job reputation for economy, safety and precision. Here are the reasons: compact construction reduces space requirements for installation . . . counterweights and hook rollers are eliminated by special ball-socket suspension. Full-electric operation permits precision control of load — eliminates complicated drive systems. Individual high-torque LeTourneau Electric Motors drive each operating component directly through a constant-mesh gear train . . . always keep power on the load, both up and down. Fingertip electric switches provide instant control of starts and stops, braking, full 360-degree swing. For more information, write:

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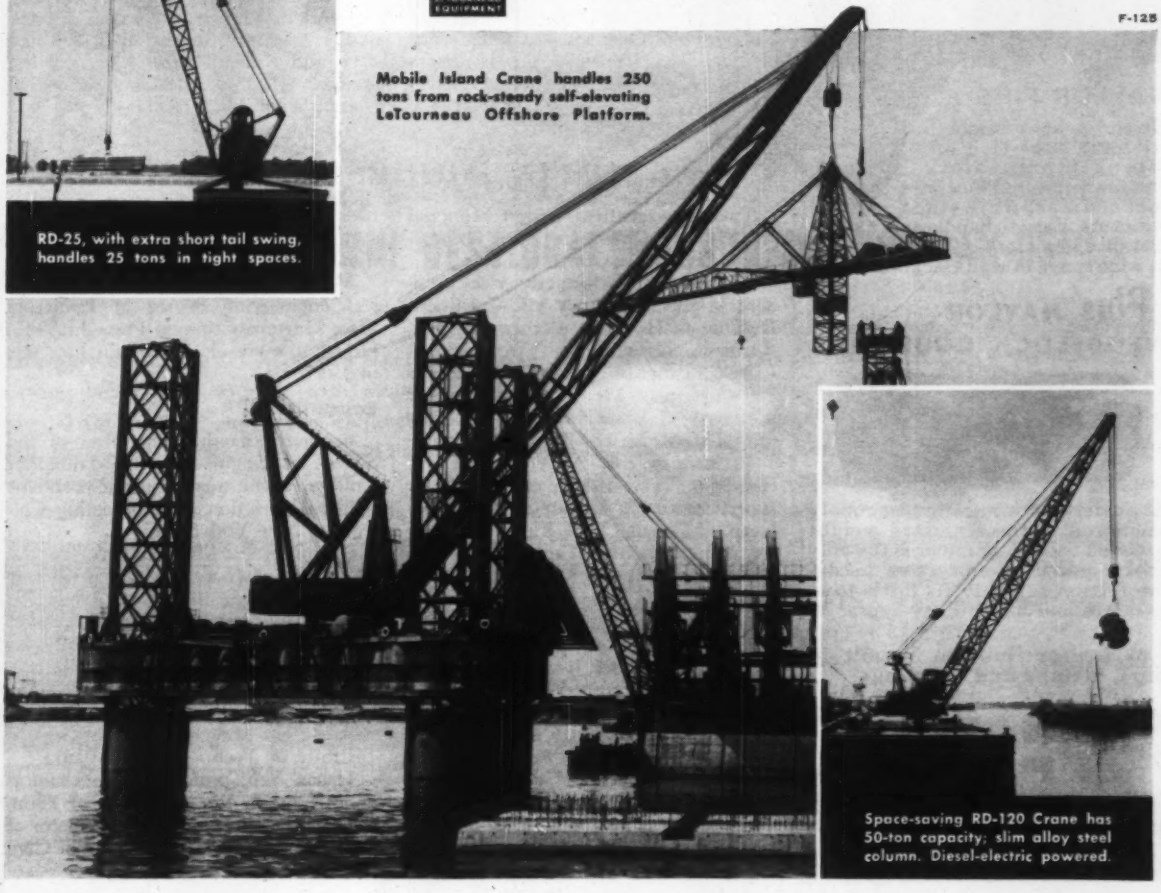
RD-25, with extra short tail swing, handles 25 tons in tight spaces.

Mobile Island Crane handles 250 tons from rock-steady self-elevating LeTourneau Offshore Platform.



Space-saving RD-120 Crane has 50-ton capacity; slim alloy steel column. Diesel-electric powered.

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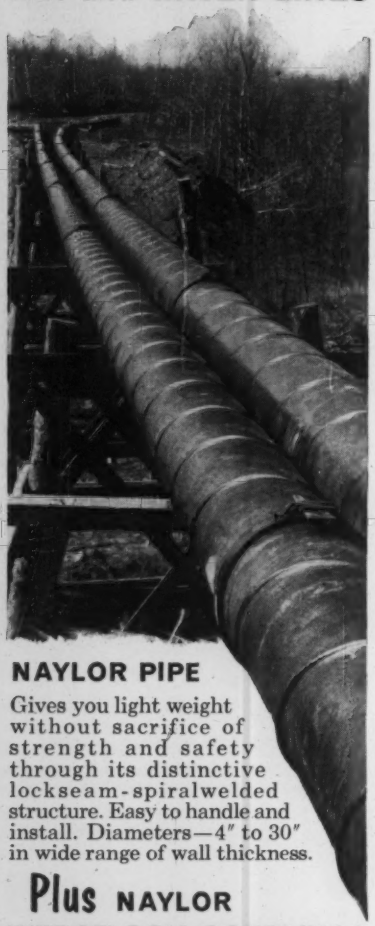
FOR YOUR
AIR and WATER LINES



NAYLOR PIPE

Gives you light weight without sacrifice of strength and safety through its distinctive lockseam-spiralwelded structure. Easy to handle and install. Diameters—4″ to 30″ in wide range of wall thickness.

Plus NAYLOR WEDGELOCK COUPLINGS

A positive connection, securely anchored in the standard weight grooved ends. A hammer is the only tool required to connect or disconnect it. Available in both low-pressure and heavy-duty types.

Write for Bulletin No. 59 on pipe, fittings and couplings.

NAYLOR PIPE Company

GENERAL OFFICES AND PLANT
1261 East 92nd Street, Chicago 19, Illinois

Eastern U. S. and Foreign Sales Office
60 East 42nd Street, New York 17, N.Y.

St. Lawrence Engineer Retires

Otto Holden, chief engineer of the Ontario Hydro-Electric Power Commission, retired on July 15 after 47 years of service. He began as a draftsman after his graduation from the University of Toronto.

First placed in charge of hydraulic plant design in 1918, Mr. Holden has been intimately associated with all of the Commission's hydro developments. Completion of the St. Lawrence Power Project, on which he guided the design of the Canadian portion, marked a fitting climax to his career.

Other notable plants for which Mr. Holden was responsible were Des Joachims, Chenaux and Le Cave on the Ottawa River and the Sir Adam Beck-Niagara Generating Station No. 1, which was the largest in the world when it was completed. Just prior to the St. Lawrence, Mr. Holden was also in charge of the Sir Adam Beck-Niagara Generating Station No. 2 as well as the remedial works in the Niagara River carried out to protect the beauty of Niagara Falls. Over the past seven years, his work has centered on 10 hydro plants with a total capacity of 2,200,500 hp.

Otto Holden

Chief hydraulic engineer in 1937, Mr. Holden became assistant general manager-engineering in 1947 and chief engineer in 1955. He is a past director of the American Society of Civil Engineers and a member for Canada of the Council of the Institution of Civil Engineers of Great Britain.

Fluor Corp. Names Coordinator

Two top executives, Ernest Moncrief and James P. Wiseman, have been reassigned at Fluor Corp., Ltd.

Mr. Moncrief, formerly vice president of the company's Mid-Continent Division in Houston, was appointed to the newly-created post of Vice President—Coordinator of Foreign Operations and Affiliates. Mr. Wiseman, former president of Fluor Products Co., has moved to Moncrief's former position.

In his new role, Mr. Moncrief will coordinate the activities of these Fluor subsidiaries and affiliates: The Fluor Corp. of Canada, Ltd.; Fluor Engineering & Construction Co., Ltd. of London; Fluor-Schuytvlot, N. V. of Haarlem, Holland; Singmaster & Breyer, Inc.; and H. G. Acres & Co., Ltd. He will operate from Fluor's headquarters in Los Angeles.

Mr. Moncrief joined the company in 1937 after graduation from California Institute of Technology, and held various positions in Fluor's Kansas City and Los Angeles offices. He was assigned to set up the Mid-Continent Division in 1948, and was instrumental in developing the division from an organization that did $3 million in sales in 1950 to over $20 million in 1959. He was named vice president of the corporation in 1952.

Mr. Wiseman, who won his mechanical engineering degree at Louisiana State University, joined Fluor in 1942. He became president of Fluor Products in 1955.

Education

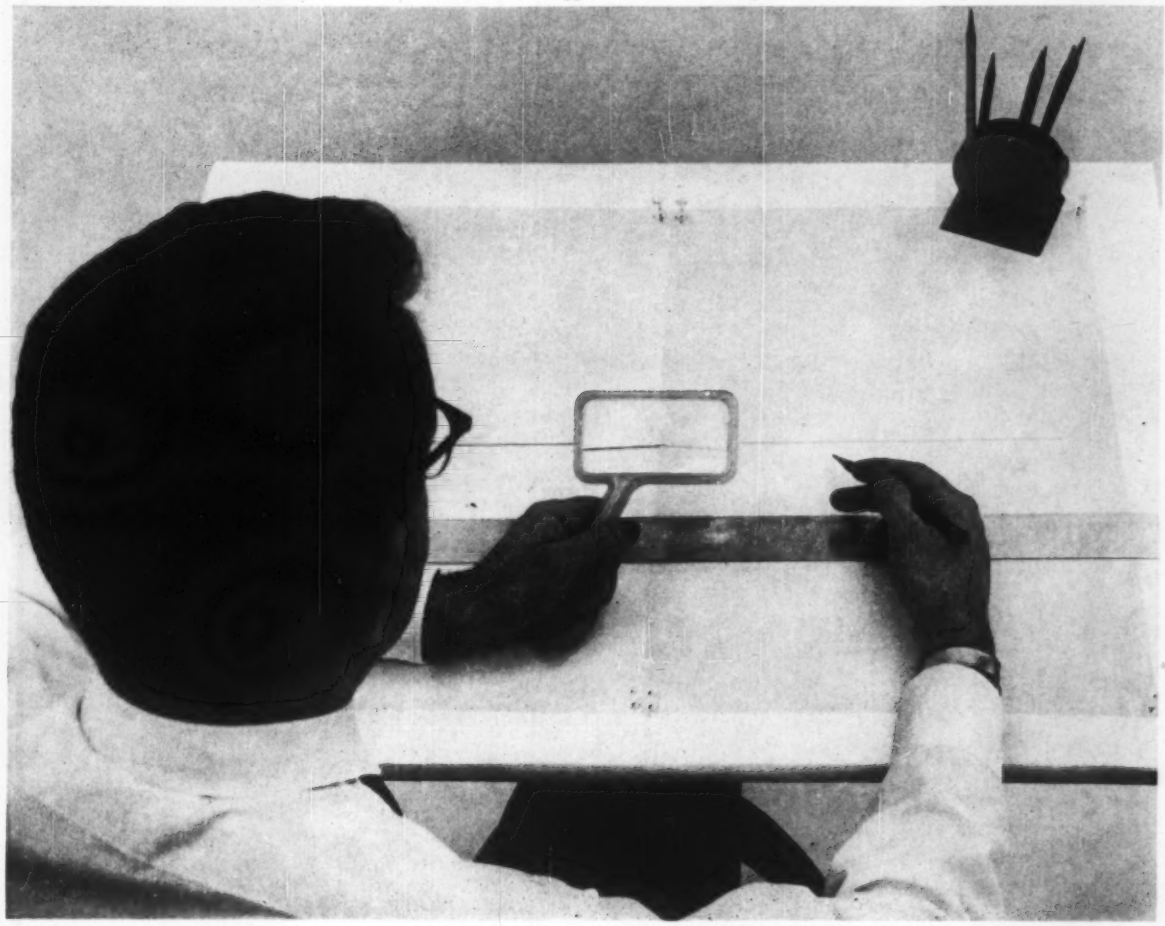
Brother Amandus Leo, dean of the School of Engineering at Manhattan College, is the newly elected president of the Association of Engineering Colleges of New York State.

Raymond A. Morgan, head of the University of Wyoming's departments of general engineering and engineering drawing, has been named assistant dean of the College of Engineering.

Mario J. Goglia has resigned as dean of the College of Engineering at the University of Notre Dame, to become associate dean of faculties at the Georgia Institute or Technology at Atlanta.

Hsuan Yeh, professor of mechanical engineering at the University of Pennsylvania, has been appointed director of the school's new Towne School of Civil and Mechanical Engineering.

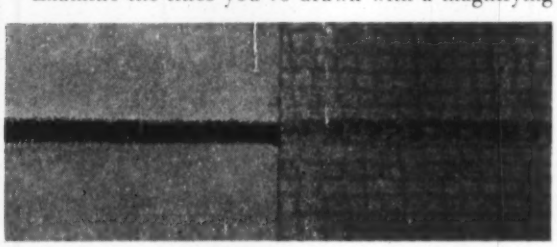
Simple Pencil Test Affords Dramatic Proof:



CRONAFLEX® HAS THE BEST DRAFTING SURFACE YOU CAN USE!

Here's an easy way to prove to yourself the superior draftability of CRONAFLEX: place a sheet of it on your drawing board, side by side with whatever drafting material you've been using. Now draft several lines on each. Erase and re-draft. Use your own tools, your own techniques.

Examine the lines you've drawn with a magnifying glass. Notice the difference in covering power, cleanness of erasures and line density—especially where lines have been re-drawn. You've just demonstrated three important reasons why CRONAFLEX is the best drafting film available: excellent *pencil acceptance*, outstanding *erasability* and good *re-drafting characteristics.*



Compare pencil acceptance of CRONAFLEX (left) with that of ordinary drafting material. Same pencil made both impressions! CRONAFLEX gives a faster, cleaner, lighter touch, too, because you don't have to bear down as you must with cloth.

CRONAFLEX has other advantages, as well. Its rugged "Cronar"* polyester base holds its size and resists kinking. It's .004" thick for easier, more efficient handling. Because CRONAFLEX is manufactured from start to finish by Du Pont, you're assured of consistent performance found in no other drafting film. To learn more, write: E. I. du Pont de Nemours & Co. (Inc.), Photo Products Department, Wilmington 98, Delaware.

*Du Pont's trademark for its polyester photographic film base.

DU PONT

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BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

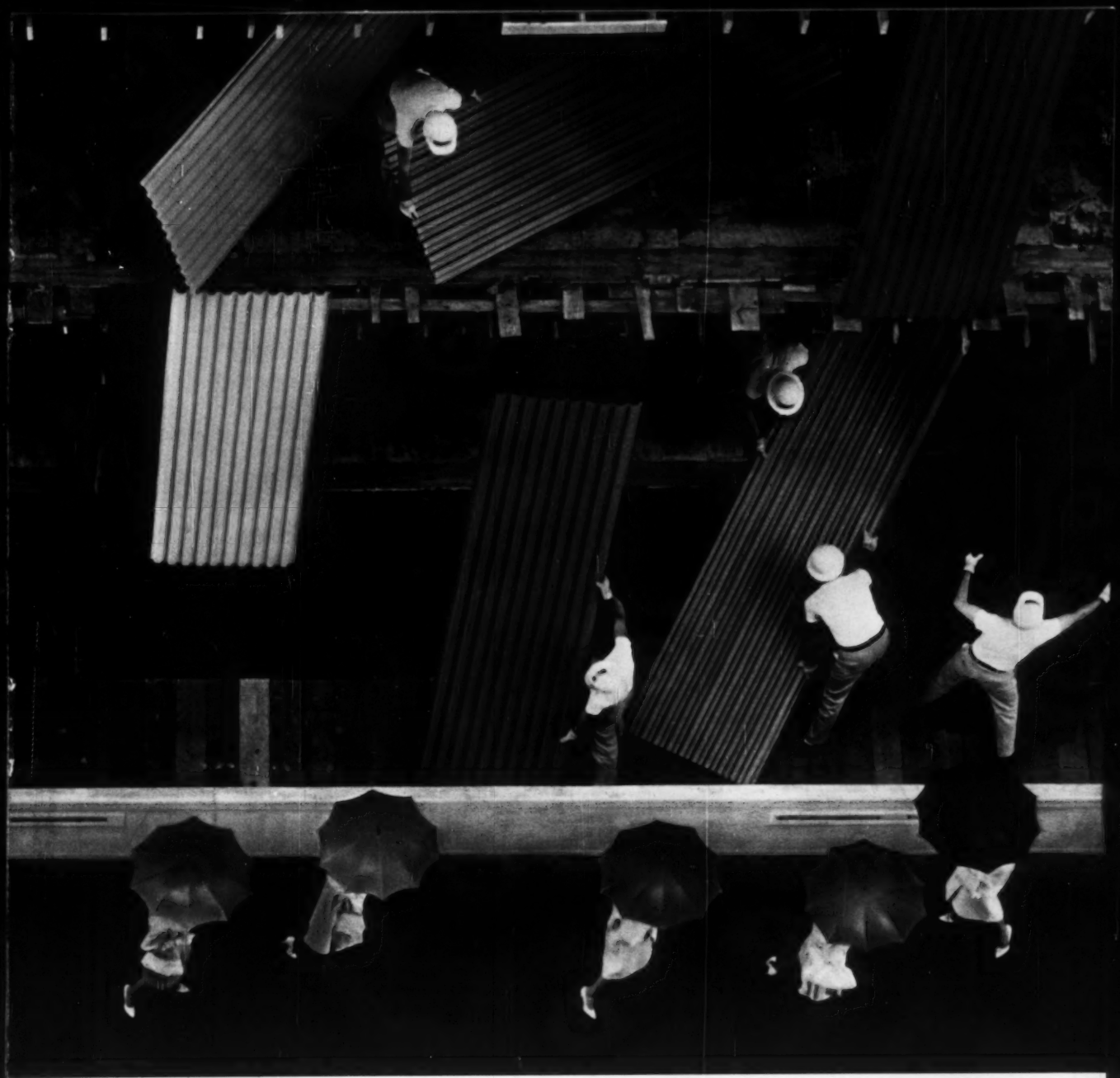
From Alcoa . . . 12 handsome

Yes, you can add the striking new beauty of Alcoa* Alumalure finish—12 hues, including natural aluminum finish—*without adding premium cost!* Whether you're planning an industrial building, school, shopping or recreation center, warehouse, or some other type of structure . . . let your imagination *go* with Alumalure finish!

You won't be hampered by budget. Alcoa Aluminum is light in weight, strong, corrosion resistant—which means it goes up faster, handles easier, requires *no maintenance*. Covers more area faster, too, because it comes in sheets as large as 48 in. wide, 30 ft long. And it's available in corrugated, V-beam, ribbed or flat sheet. Will it *stay* beautiful? Alumalure, a tough, baked enamel finish on aluminum, already has passed the *15-year* mark in a rigorous test of durability!

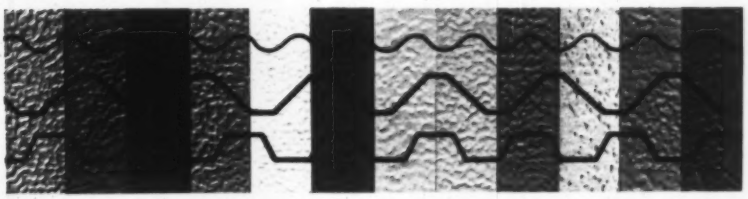
Specify Alumalure finish by name . . . your assurance of the *finest* baked enamel finish, factory applied under rigid quality control. For samples, call your local Alcoa sales office. For color swatches and full technical data, write: Aluminum Company of America, 821-G Alcoa Building, Pittsburgh 19, Pa.

*Registered Trademarks of Aluminum Company of America



Building site, courtesy George A. Fuller Co., New York, N. Y.

ways to please a frugal client



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MADE BY ALCOA

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with Alcoa Alumalure finish

and natural finish aluminum sheet

through these dependable jobbers:

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920 Cherokee Street
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Atlanta, Georgia
The J. M. Tull Metal & Supply Co., Inc.
285 Marietta St., N. W.
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Hinkle Supply Company, Inc.
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Birmingham 5, Alabama

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Edgcomb Steel of New England, Inc.
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Nashua, New Hampshire
New England Erecting Co., Inc.
321 Commonwealth Rd.
Cochituate, Massachusetts

BUFFALO
Troup Engineering Co.
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Buffalo 13, New York
Whitehead Metals, Inc.
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Charlotte 6, North Carolina

CHICAGO
Central Steel & Wire Co.
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Cleveland 14, Ohio

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Ohio Valley Hardware Co., Inc.
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Evansville, Indiana

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Healey & Popovich
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Hamden, Connecticut

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Los Angeles 26, California
George D. Widman Co.
17823 Evelyn Avenue
Gardena, California

LOUISVILLE
Perry Lumber Co.
246 Walton Avenue
Lexington, Kentucky

MEMPHIS
Arkansas Foundry
1434 E. Sixth Street
Little Rock, Arkansas

MILWAUKEE
Wisconsin Bridge and Iron
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Milwaukee 9, Wisconsin

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Chris Anderson Materials Corp.
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Perth Amboy, New Jersey
Beers Steel Bldg. Corp.
413 High Street
Elizabeth, New Jersey

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Richmond Hill 18, New York
Whitehead Metals, Inc.
303 W. 10th Street
New York 14, New York

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PHILADELPHIA
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Philadelphia 34, Pennsylvania

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Phoenix, Arizona
Garland Steel Co.
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Phoenix, Arizona

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Pacific Metal Co.
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Portland 9, Oregon

RICHMOND
Roof Engineering Corp.
715 Matoka Street
Norfolk, Virginia

ST. LOUIS
Mississippi Valley Structural Steel
3117 Big Bend Boulevard
St. Louis 17, Missouri

SAN DIEGO
Ducommun Metals & Supply Co.
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add lasting beauty to your buildings using Industrial Building Products with Alumalure finish made by

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

Obituaries

John B. Kelly Sr., 70, Philadelphia contractor who started a bricklaying company in 1919 and developed it into John B. Kelly, Inc., one of the largest contracting companies of its kind, with offices in Philadelphia, New York and Pittsburgh.

Charles C. Conklin, 60, retired construction manager of Stone & Webster Engineering Corp., New York City. He had been with Stone & Webster continuously from 1924 until his retirement in 1954.

Clinton B. Brown, 72, retired senior engineer for Ford, Bacon & Davis, Inc., New York City engineers. A mechanical engineer, Mr. Brown joined Otis Elevator Co. in 1908, and was with Worthington Pump & Machinery Co. from 1913 to 1917.

Huges Brussel, 82, St. Louis consulting engineer for more than half a century. He came from France in 1904 and stayed to pioneer in the use of reinforced concrete. He was the designer of the St. Louis Cathedral, the Mayfair, Lennox, and Forrest Park hotels, and McKinley High School in St. Louis.

Harry Hammond, 75, retired mechanical engineer and special representative to the oil and gas industries for National Tube Division of U. S. Steel in Pittsburgh. In that capacity he aided in developing the Big Inch pipeline and other oil and natural gas carriers.

Angus Burlingame MacMillan, 77, well known civil engineer and early user of reinforced concrete. He retired in 1956 as chairman of the board of Abernathaw Construction Co., of Boston.

Lester S. English, 64, vice president and chief engineer of Bethlehem Contracting Co., Bethlehem, Pa.

Frederick C. Fisk, 94, pioneer construction engineer in Buffalo, N. Y. He was responsible for the construction of 18 Lehigh Portland Cement Co. plants in this country and abroad.

James H. Graham, 81, dean of the University of Kentucky College of Engineering from 1935 to 1946. During World War I he organized Engineer Corps supply lines and docks overseas.

R. J. Bond, 80, president of the Sims Construction Co., Philadelphia. Prior to joining Sims in 1946, Mr. Bond was an executive for the Pennsylvania Railroad.

Cupert A. Wanless, 65, Head of the Department of General Engineering, Oregon State College.

(*Obituaries continued p. 66*)

TO CORNER more new construction work of the kind and size you want, you need advance news on jobs coming up —so you can concentrate on those that are best for you. You need daily Dodge Reports!!

Dodge

F.W. DODGE CORPORATION

Reports

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Send me the booklet: "How General Contractors Get More Business in New Construction" and let me see some typical Dodge Reports. I am interested in the general markets checked below.

☐ House Construction ☐ General Building
☐ Engineering Projects (Heavy Construction)

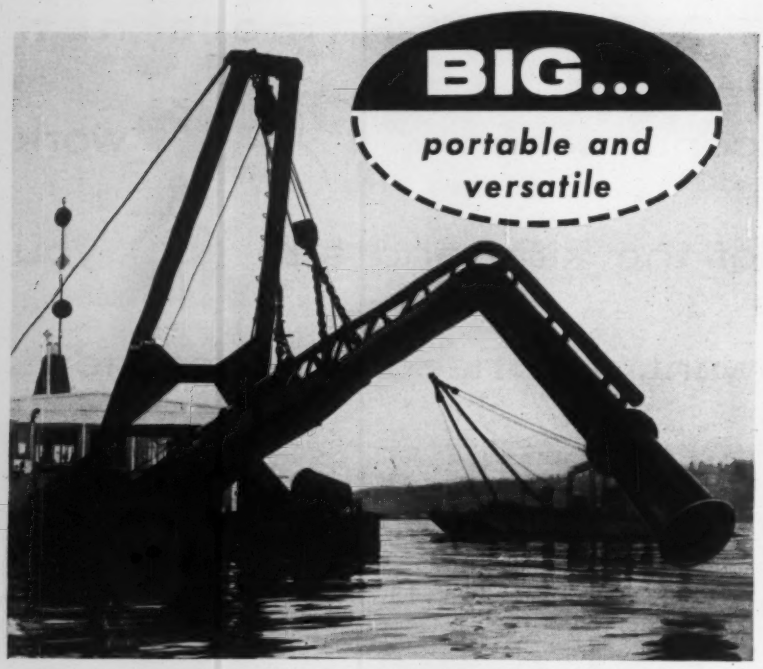
Area_____

Name_____

Company_____

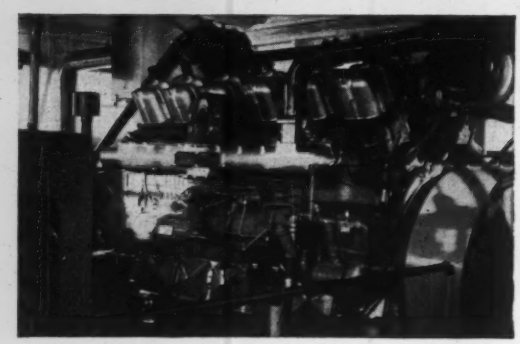
Address_____

City_____ Zone_____ State_____



Marine Pipeliner No. 114 at work for contractor-owners Marine Pipeline & Dredging Co., Ltd., of Vancouver, B. C. This 16" suction dredge is 30' x 70' (without cutters and spuds), 5' deep, 2½' draft. Northern Engine & Eqpt. Co., Ltd., Vancouver, supplied its Waukesha Diesel.

WAUKESHA *powered*



Power plant of dredge is a WAUKESHA Model VLRDBS Turbocharged DIESEL—12-cylinder, 60° vee, four cycle, 8½ x 8½-in. bore and stroke, 5788 cu. in. displacement. An independent cooling system replaces fan. About 1100 hp is applied on actual drive. Estimated capacity of V-belt driven pump is 456 cu. yds. per hour.

Working on a water-crossing of a gas pipe line in the Fraser River, British Columbia, as shown here . . . dredging on excavation for bridge piers . . . pipeline pumping of sand directly on road grade . . . or stock-piling river-sand—the Waukesha-Diesel-powered 16-inch suction dredge *Marine Pipeliner No. 114* has the capacity, speed and flexibility to handle the job. And it's portable, too—built on six pontoons, quickly disassembled for shipping on flat cars anywhere there's a job for the Marine Pipeline & Dredging Co., Ltd. They have three other portable dredges—all of them Waukesha-Engine-powered. Contractors appreciate the simplicity, dependability, and fuel and maintenance economy of the big, powerful Waukesha V-12 Turbocharged Diesel. *Send for Bulletin 1663.*

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES

Factories — Waukesha, Wisconsin, and Clinton, Iowa 481

. . . Obituaries

E. M. Van Norden, 84, former assistant to the vice president of the Consolidated Edison Co. of New York. He graduated from the Polytechnic Institute of Brooklyn in 1897 and joined Consolidated Edison soon after. He progressed in the company from clerk to mechanical engineer in charge of all power-plant design and construction, a position he held at the time of his retirement in 1943.

Jesse R. Glaeser, 59, vice president and chief engineer of Perini Corp., Framingham, Mass. A specialist in underground construction, he supervised construction of powerhouses, caissons and some of the largest and longest tunnels in the world. Mr. Glaeser was a member of the Moles, an eastern organization of heavy construction men, and of the Beavers on the West Coast.

L. M. Franklin, 85, retired partner of York & Sawyer, New York City architects. He was instrumental in planning the Allegheny General Hospital in Pittsburgh and Roosevelt Hospital in New York among others.

Albert C. Martin, 80, Los Angeles architect and engineer and founder of the firm Albert C. Martin & Associates. He designed many notable buildings in Los Angeles and vicinity, including Los Angeles City Hall.

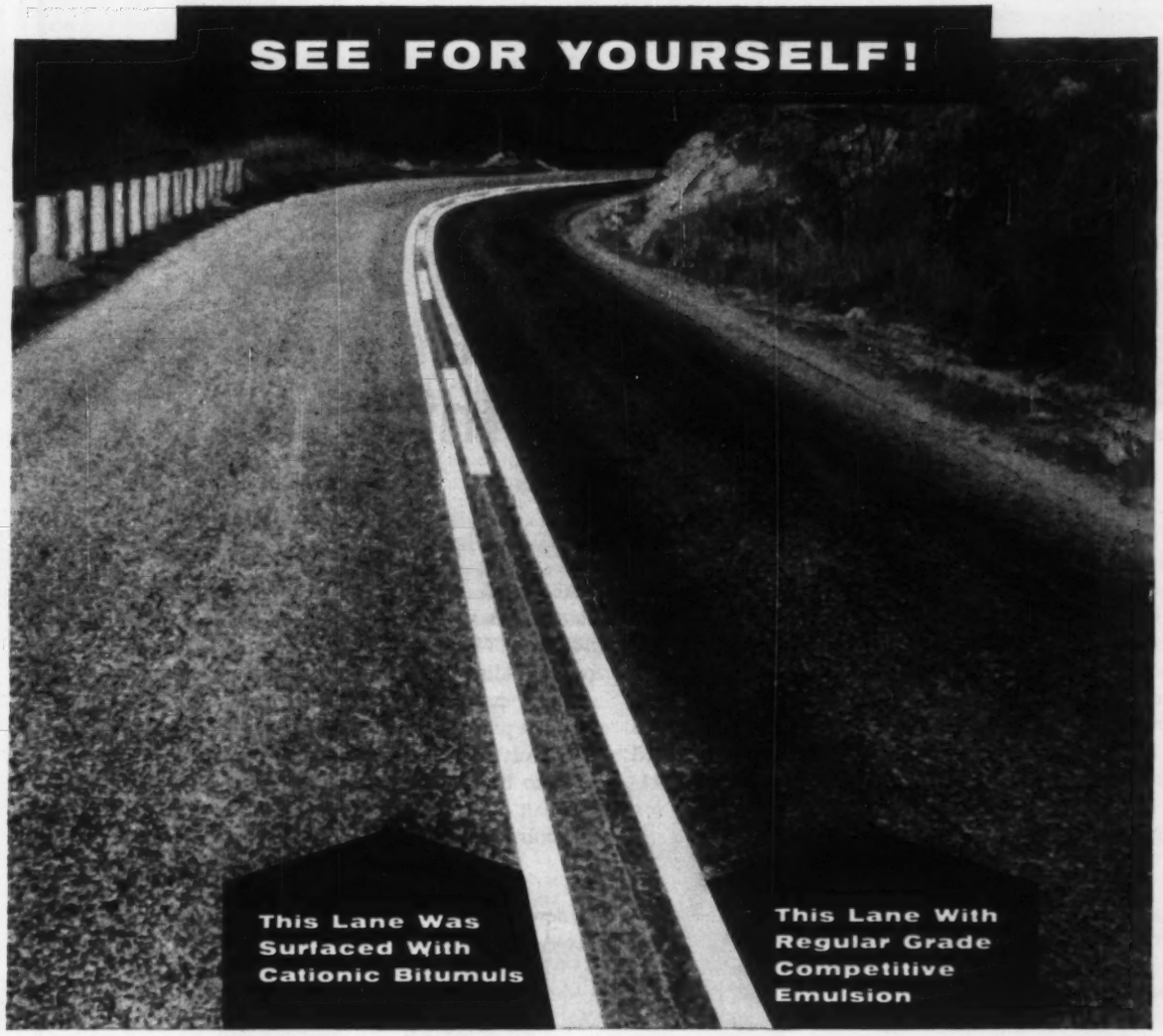
John M. Davis, 69, president of LaSalle Construction Co., Chicago. He directed the construction of many outstanding buildings, among them being the Palmolive Building, Chicago, the Cleveland Public Library and the North Dakota State Capitol at Bismark.

Gunnar E. Soderberg, 77, retired Akron, O., City Engineer who served previously in the Akron highway department from 1918 to 1948.

Harrison Walters, 82, Indianapolis civil engineer and contractor. He was president of Walters Engineering Co. and later consulting engineer with Russell B. Moore Co. Mr. Walters also founded and was first president of the Indiana Society of Civil Engineers.

Francis Wakem, 63, retired vice president of industrial production of Johns-Manville Corp. of New York City. He had been with Johns-Manville for 36 years. During World War II, he served on two war production boards as member of advisory committees.

Francis W. Collins, 81, consulting engineer and former president of the Ridgefield Water Supply Co. in Connecticut.



You Get BETTER Surface Treatments With CATIONIC BITUMULS

This photograph gives visible proof of the superior performance of Cationic Bitumuls. The picture was taken on a 25-mile test section of highway in North Carolina.

Based on the success of this job, Cationic Bitumuls is being used for extensive surface treatment work throughout the State during the current construction season.

In every test made to date—whether in laboratory or field—Cationic Bitumuls has shown two outstanding qualities:

1. Unusual ability to hold aggregate, even "difficult" types.
2. Rapid initial set that minimizes damage from early rainfall.

If you haven't tried this new material, call our nearest office today and arrange to test Cationic Bitumuls on your next pavement construction or maintenance job.

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BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties • PETROLASTIC® Industrial Asphalts

LOOK WHAT THEY'RE DOING WITH DEEP STRENGTH ASPHALT PAVEMENTS IN WESTERN KANSAS!

To withstand heavy traffic, sizzling heat, numbing cold...

11-inch sand-Asphalt base is chosen for Kansas Interstate 70

Traffic will soon be rolling on a new DEEP STRENGTH Asphalt pavement section of Interstate 70 in Trego County, Western Kansas. In this part of the country, temperatures range from a numbing 20 below zero in winter, to sizzling 115°F in summer; winds sometimes reach hurricane force.

To meet the demands of expected heavy traffic and extreme weather, Kansas Highway Commission Engineers chose DEEP STRENGTH Asphalt pavement. Notice construction and cross-section (below). See how precepts of the new DEEP STRENGTH Asphalt design are incorporated . . . heavy-duty, **full width** Asphalt Concrete surface . . . **11-inch heavy-duty, sand-Asphalt base** . . . heavy compaction . . . good drainage. Here is strength and durability!

Minimum Maintenance

When built like this—for DEEP STRENGTH—Kansas experience has shown that Asphalt pavement will carry the heaviest traffic loads *without* distress and *with minimum maintenance.*

Make Best Use of Road-building Dollars

Like many other states, Kansas is finding that when Interstate highways are built with Advanced Design DEEP STRENGTH Asphalt pavements, the best use is made of road-building funds. For the Advanced Design Criteria for Asphalt pavements often save money over the cost of Asphalt pavement designed to other standards. The reason is the Advanced Design Criteria permit inexpensive Asphalt base to be substituted, within limits, for more expensive Asphalt concrete surfacing, and allow reduction in total structure thickness when used in place of untreated base.

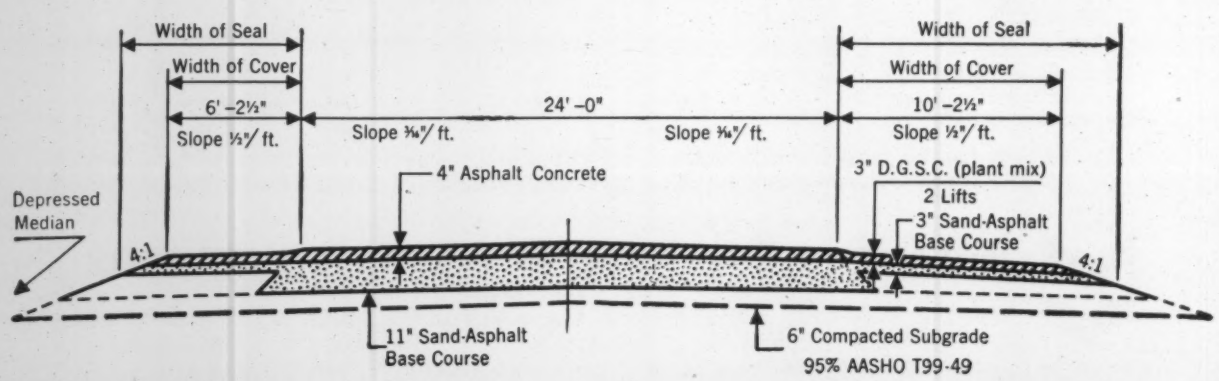
New Handbook

A new edition of the *Asphalt Handbook* incorporating all the Advanced Design Criteria implied by the term DEEP STRENGTH Asphalt pavement is now available at the Asphalt Institute office serving your area.

THE ASPHALT INSTITUTE

ASPHALT INSTITUTE BUILDING, COLLEGE PARK, MARYLAND

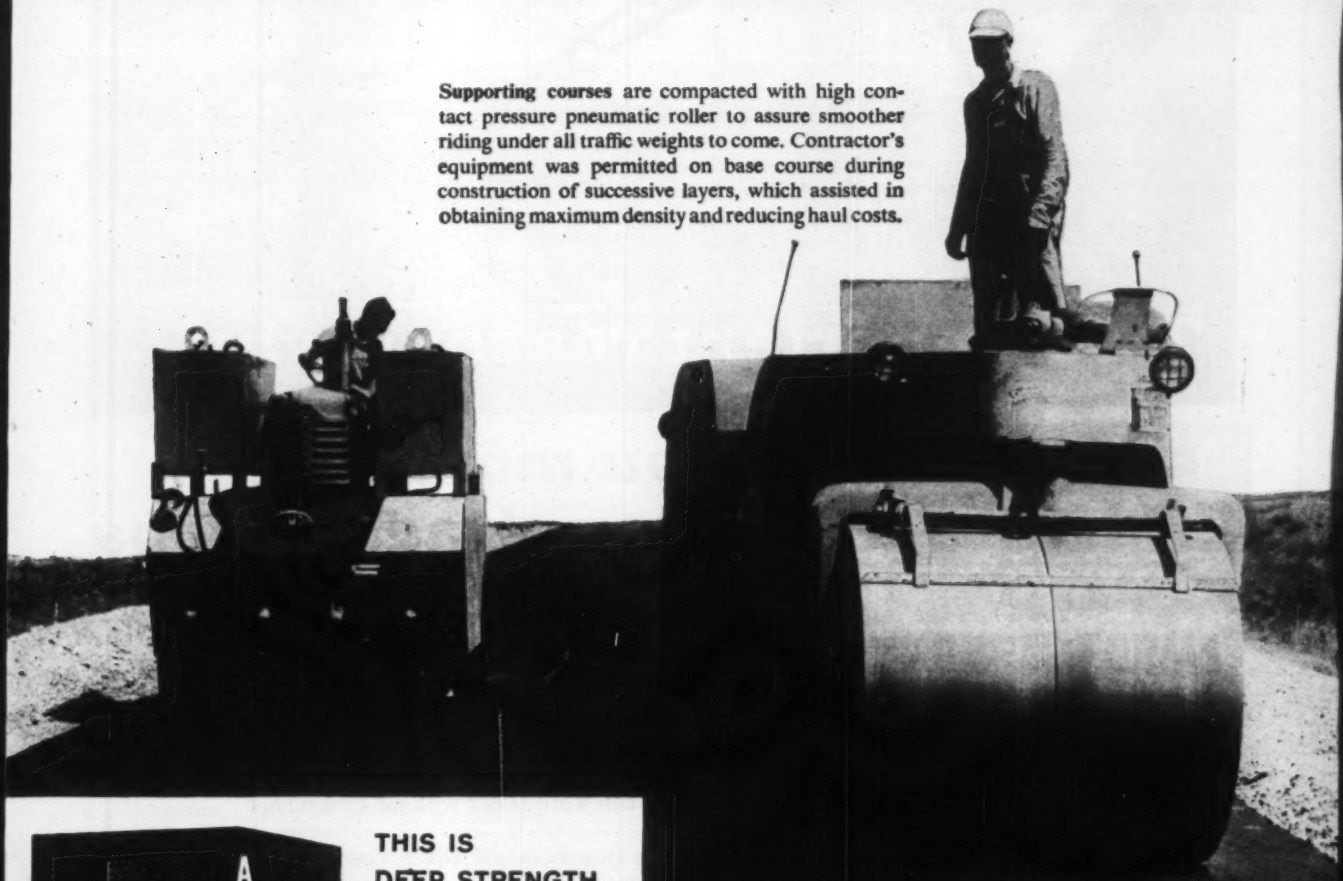
TYPICAL PAVING SECTION



Subgrade was compacted and fine graded before road-mixing of sand-Asphalt base.

Local sand shaped in windrow, bladed to reduce moisture to less than 1%, reshaped into windrow, mixed with Asphalt through traveling mixer—aerated and compacted.

Supporting courses are compacted with high contact pressure pneumatic roller to assure smoother riding under all traffic weights to come. Contractor's equipment was permitted on base course during construction of successive layers, which assisted in obtaining maximum density and reducing haul costs.



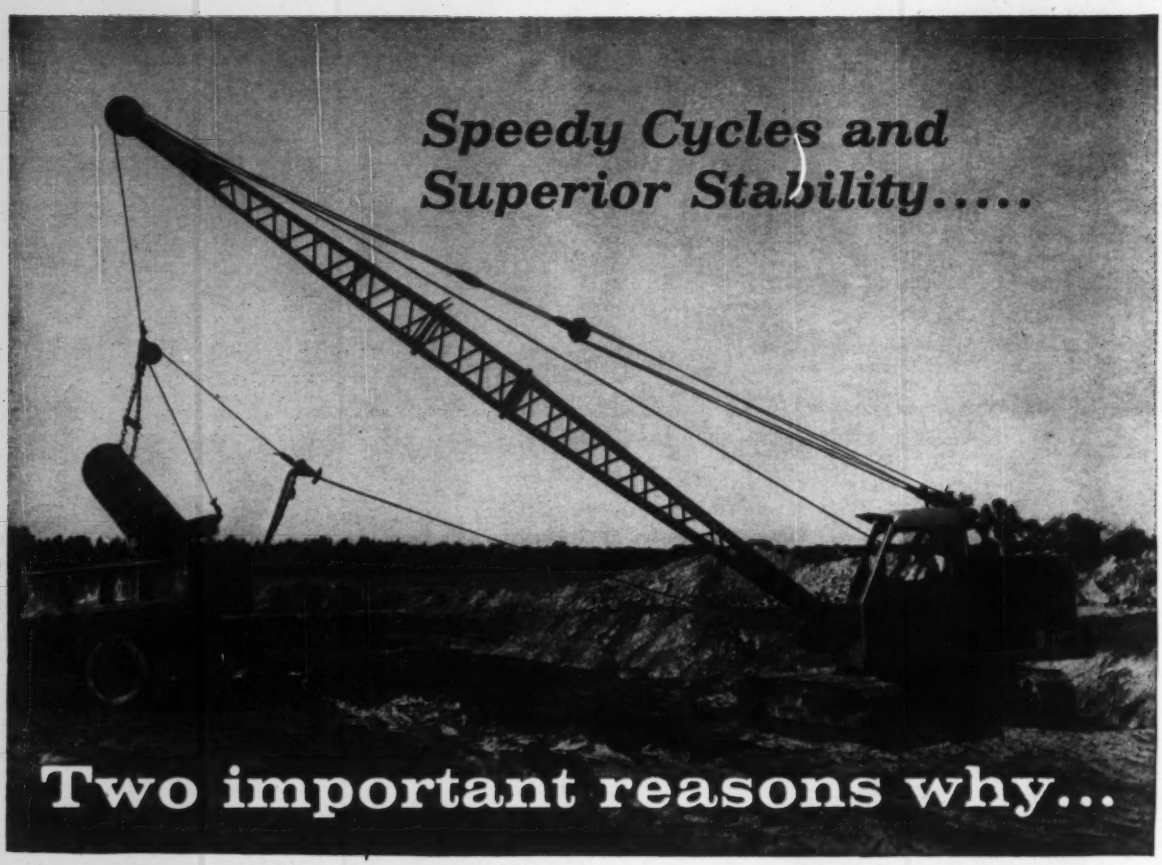
THIS IS DEEP STRENGTH CONSTRUCTION

A
2-inch surface course

B
2-inch binder course

C
11-inch
sand-Asphalt base

D
Subgrade



UNIT gives you more Earning Power on dragline jobs

You'll find two essentials of profitable dragline service combined in a UNIT — speedy operating cycles, through full use of power, and outstanding stability. You save power and gain speed with UNIT direct-in-line drive from engine to main machinery. Power is transmitted through a worm drive with minimum loss due to friction. This is one of many UNIT built-in values that pay off in greater job output.

UNIT extra long crawlers and wider axles and shoes provide perfect balance, too. Stability is superior . . . you can work faster without continuous tipping on long or low boom work.

A UNIT DRAGLINE gives you these two important advantages . . . and many more. You get a one-piece cast main machinery gear case with all gears, shafts, and bearings operating in an oil bath; automatic traction brakes; twin hook rollers; and all disc-type operating clutches.

Your UNIT dealer has full information on ½ to ¾-yd. draglines, fully convertible to other front ends. See him soon for the full UNIT story.

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UNIT CRANE & SHOVEL CORP.
6315 W. Burnham Street
Milwaukee 19, Wisconsin

SHOVELS: ½ to ¾ YDS. • **HOES:** ½ to ¾ YDS. • **CRANES:** 5½ to 40 TONS • **DRAGLINES:** ½ to ¾ YDS.

New Hampshire Highway Prices

Three-year price trend is mixed on weighted average unit prices for years 1957-1959

Selected Items	Unit	Average Unit Prices 1957a	1958a	1959b
Clear and grub	ac	$495.49	$453.75	$482.13
Trees, remove small	ea	37.22	32.40	41.62
remove large	ea	99.89	70.82	99.56
Excavation, earth	cy	0.53	0.45	0.47
ledge	cy	2.19	2.83	2.16
muck	cy	0.48	0.40	0.60
uncl channel	cy	0.74	0.64	0.49
struct, earth	cy	4.53	3.63	3.50
ledge	cy	10.67	11.42	15.00
uncl	cy	3.73	2.74	2.54
Borrow, earth	cy	0.45	0.48	0.42
Gravel	cy	0.80	0.72	0.93
crushed	cy	1.64	1.47	1.53
Asph surf treat, cl A	gal	0.21	0.18	0.19c
Hot asph conc, type I-1				
pavement	t	7.87	6.80	7.08
base	t	7.77	7.03	7.19
wearing course	t	16.64	11.59	13.50d
Pile loading tests	ea	688.89	710.64	542.30
Piles, steel bearing	lb	0.11	0.11	0.11
conc bearing	lf	6.20	6.11	
Concrete, class AA	cy	63.35	66.00	60.32
class A	cy	53.35	50.53	48.01
footings	cy	28.50	31.07	30.27
appr slabs	cy	27.01	26.82	26.79
class C	cy	48.92	33.23	70.00
Membrane waterproofing	sy	2.09	2.05	1.91
Reinf steel	lb	0.13	0.13	0.13
Msnry, mortar sq stn	cy	239.06	242.60	244.57
mortar rubble	cy	41.62	41.46	45.17
Stone coping	lf	10.23	10.11	8.35
Riprap E	cy	24.70	25.17	23.96
Stone fill	cy	4.72	4.11	5.67
RCP, incl specified excavation, std str 15"	lf	4.22	4.13e	4.28h
18"	lf	5.21	4.96e	5.10h
24"	lf	7.46	7.11e	7.26h
30"	lf	9.62	8.97e	10.32h
36"	lf	11.58	11.55e	14.64h
extra str, 24"	lf	8.70	7.86f	8.86j
30"	lf	10.14	10.26f	
36"	lf	13.89	11.64f	13.42j
48"	lf	22.62	21.43f	18.00j
60"	lf	35.56	31.00f	45.00j

Selected Items	Unit	Average Unit Prices 1957a	1958a	1959b
RCP (contd.)				
dbl extra str, 15"	lf	$5.39	$4.50g	$
18"	lf	6.55	6.03g	6.71k
30"	lf	11.87	10.57g	11.83k
36"	lf	13.39		12.00k
42"	lf		17.63g	23.40k
60"	lf		36.19g	33.08k
72"	lf		49.00g	41.00k
RCP underdr, incl specif exc & bkfl, 15"	lf	5.08	4.53	3.78
18"	lf	6.05	5.66	4.50
Bit ctd perf CMP underdr, incl spec exc & bkfl, 15"	lf	4.55	5.19	4.47
18"	lf		5.69	5.50
Catch basin, type B	ea	219.71	210.36	210.81
type C	ea	203.31	207.15	281.51
Drop inlet, type C	ea	198.98	201.47	250.00
type F	ea	189.07	226.50	190.00
Half circle sluice, 15"	lf	4.88	4.59	5.25
18"	lf		5.25	5.42
Gran curb inlet, type B	ea	33.77	32.61	33.59
Asph sidewalk, 2"	t	22.68	15.44	14.66
Grd rail, cable, std GR-1A	lf	1.64	1.45	
2-cable, GR-2A	lf	2.11	2.00	1.44
wood, sing rail, GR-3A	lf	3.68	3.17	
GR-5A	lf			2.97
Anchorage	ea	47.77	48.45	42.98
Post marker	ea	7.66	7.19	7.03
Concrete sidewalk, 4"	sy	5.82	4.93	
Fence, stock wire	lf	0.61	0.52	0.49
gate	ea	46.37	44.33	41.00
Project marker	ea	23.82	23.00	23.28
Loam, 4" deep	sy	0.37	0.38	0.34
Sod	sy	1.77	1.74	1.42
Fertilizer	lb	0.09	0.12	0.08
Grass seed	lb	1.84	1.99	1.45
Calcium chloride	t	60.70	58.80	64.17
Mulch	t	64.69	67.93	64.71
Water	Unit	2.25	1.93	2.37

a Incl Interstate projects b Interstate projects only c Incl sand cover d For bridges e Cl III f Cl IV g Cl VI h 2000 D j 3000 D k 4000 D

Wide Spread in Big Bend Reservoir Bids

First stage earthwork on the Big Bend Reservoir project, a multipurpose dam near Ft. Thompson, Chamberlain, S. D., involves about 6,500,000 cu yd of embankment, 1,250,000 cu yd of chalk excavation, 5,200,000 cu yd of overburden and shale excavation, 500,000 cu yd of dredged fill, 600,000 cu yd of muck removal, and 30,000 cu yd of riprap.

The Corps of Engineers, Omaha, Neb., awarded the contract at $3,043,278, to Western Contracting Co., Sioux City, Ia. The award was 11.5% under the engineer estimate, 49% under the high bid, and almost 45% under the second high of the seven bids.

The government furnishes 404 lin ft of 72x44 in. CMP arch culvert pipe.

Minimum wages include: carpenter, $2.75; crane & power shovel operator, $3.35; tractor operator, $2.85; common laborer, $1.63.

The bidding included:

1C Western Contr. Corp., Sioux City, Iowa	$3,043,278
2 J. H. Beckman Constr. Co., Sioux Falls, South Dakota	3,382,449
7 Kaiser Engrs. & Constrs., Inc., Oakland, Calif.	5,994,817
EE Corps of Engineers, Omaha, Neb	3,438,237

Bids: 3-31-60 Items	Unit	Quantity	Unit Prices 1C	2
Clear & grub	ls	job	$500,000	$60,000
Exc overburden & shale	cy	5,497,500	0.22	0.31
chalk	cy	1,238,800	0.48	0.47
muck, first 500,000 cy	cy	500,000	0.20	0.43
over 500,000 cy	cy	150,000	0.30	0.35
dredged pervious, first 500,000 cy	cy	500,000	0.20	0.49
over 500,000 cy	cy	100,000	0.30	0.35
Fill, imperv & semi-imperv	cy	434,800	0.05	0.06
pervious	cy	211,700	0.05	0.06
random	cy	1,808,300	0.05	0.06
Berm, downstream	cy	493,200	0.05	0.06
upstr shale & blanket	cy	1,855,000	0.05	0.06
Dumped perv fill, right bank, extra haul, first 500,000 cy	cy	500,000	0.10	0.05
over 500,000 cy	cy	500,000	0.05	0.05
Compaction, added rolling	hr	250	1.00	20.00
Bedding material	cy	12,600	1.50	1.50
Riprap	cy	18,900	7.00	6.70
Settlement gages, instal	ea	15	350.00	400.00
gage pipe	lf	250	17.00	30.00
Circ pipe culv, 18"	lf	146	5.00	7.00
24"	lf	150	7.00	8.00
CMP arch culv, 72 x 44"	lf	196	34.00	46.00
instal govt supplied	lf	404	10.00	10.00
Flared end section	ea	2	40.00	50.00
Guide posts	ea	90	6.00	10.00

Commence: 5-6-60
Complete: 11-15-61. Liq. dam: $250/day

In the field of

HYDRAULIC DREDGING

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a leading name for over 50 years

Gahagan Dredging Corporation,
90 Broad St., New York 4, N. Y.
Write, wire or phone Whitehall
3-2558. Cable "Walgahagan".

POSEY WORKS FOR BETTER-

TUNNEL FORMS

Adjustable box forms, non-telescoping round forms for sewerage, water, storm sewers or vehicular tunnels.

For FREE illustrated catalog showing job application, write:

POSEY IRON WORKS INC.

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• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe

561 S. PRINCE STREET LANCASTER, PA.

CYANAMID'S EXPLOSIVES ENGINEER HELPS YOU ON THE JOB!

By delivering the goods on time!

To make sure rock work keeps on schedule, Cyanamid's explosives engineer sees to it that explosives arrive where you need 'em, when you need 'em!

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Belleville, Ill.; Berlin, Pa.; Brazil, Ind.; Denver, Colo.; Foster, Ohio; Great Bend, Kans.; Latrobe, Pa.; Odessa, Texas; Oklahoma City, Okla.; Riverton, Wyo.; Roundup, Mont.; Salt Lake City, Utah; Tulsa, Okla.

Don't forget Cyanamid's job-winning *Pre-Bid Service!*

By conducting a careful pre-bid investigation, Cyanamid's explosives engineer offers contractors valuable assistance in estimating hard-rock blasting costs. Next time you bid on a hard-rock job, let an experienced Cyanamid explosives engineer help you *get* and *do* the job!

CYANAMID

AMERICAN CYANAMID COMPANY

EXPLOSIVES AND MINING CHEMICALS DEPARTMENT

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

SALES OFFICES: Denver, Colorado • Maynard, Massachusetts • Kansas City, Missouri • St. Louis, Missouri • Albuquerque, New Mexico New York, N.Y. • Tulsa, Oklahoma • Latrobe, Pennsylvania • Pottsville, Pennsylvania • Dallas, Texas • Salt Lake City, Utah • Bluefield, West Virginia

PLANTS: Latrobe, Pennsylvania • New Castle, Pennsylvania • Springville, Utah

PRODUCTS: High Explosives • Permissibles • Seismograph Explosives • Blasting Agents • Blasting Caps • Electric Blasting Caps • Blasting Accessories

Materials Prices

Monthly Market Quotations by ENR Field Reporters

LUMBER, TIMBER, PLYWOOD PER M FT.B.M., CARLOAD LOTS F.O.B.

SOUTHERN PINE AND DOUGLAS FIR

All Southern Pine is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2. Fir small timbers and timbers are No. 1. Lengths up to 20 ft. (Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh
Atlanta....n†	$ 90.00	$ 90.00	$ 82.00	$ 90.00	$ 90.00	$ 95.00	$125.00	.....	.....
Baltimore....o	96.00	96.00	100.00	100.00	106.00	106.00	125.00	.....	.....
	118.00g	*122.00g*	*122.50g*	*126.00g*	*126.00g*	*126.00g*	*150.00g*	*$180.00*	*$170.00*
Birmingham....n†r	85.00	87.00	84.00	88.00	91.00	97.00	116.00	.....	.....
	80.00	*80.00*	*83.00*	*81.00*	*81.00*	*98.00*	*88.00*	*85.00*	*93.00*
Boston....ss	104.00f	105.00f	105.00f	105.00f	105.00f	122.00a	.....	.....	.....
	108.00	*108.00*	*115.00*	*115.00*	*115.00*	*126.00*	*152.00*	*154.00*	*170.00*
Chicago....**	117.00	120.00	114.00	128.00	136.00	137.00	132.00	.....	.....
	125.00	*125.00*	*136.00*	*154.00*	*154.00*	*155.00*	*143.00*	*143.00*	*143.00*
Cincinnati....n*	102.50	103.75	98.50	98.00	104.75	112.75	121.00	.....	.....
	105.50	*109.00*	*106.00*	*109.75*	*111.50*	*116.50*	*148.50*	*148.50*	*148.50*
Cleveland....o**	98.00	100.00	100.00	98.00	102.00	108.00	.....	.....	.....
	.....	.....	*115.00*	*110.00*	*118.00*	*116.00*	*140.00*	*140.00*	*140.00*
Dallas....‡	95.00k	99.00k	103.00k	103.00k	103.00k	106.00k	135.00	.....	.....
Denver....n*	*Not in stock*		*119.00*	*119.00*	*119.00*	*121.00*	*177.00*	*197.00*	*197.00*
Detroit....‡	140.00	142.50	142.00	138.00	145.50	145.00	.....	.....	.....
	137.25	*137.25*	*148.25*	*148.50*	*155.00*	*160.50*	*199.00*	*216.00*	*216.00*
Kansas City....tn	120.00	120.00	125.00	125.00	128.00	150.00	.....	.....	.....
	180.00	*180.00*	*185.00*	*185.00*	*128.00*	*132.00*	*168.00*	*225.00*	*225.00*
Los Angeles....znu	*98.00*	*98.00*	*98.00*	*98.00*	*98.00*	*98.00*	*134.00*	*143.00*	*143.00*
Minneapolis....os	*145.00*	*145.00*	*145.00*	*145.00*	*145.00*	*145.00*	*185.00*	*185.00*	*185.00*
Montreal....*bp	84.00a	90.00a	84.00a	84.00a	99.00a	125.00a	.....	.....	.....
	160.00	*160.00*	*160.00*	*160.00*	*160.00*	*160.00*	*170.00*	*170.00*	*170.00*
New Orleans....tn	89.00	89.00	91.00	95.00	95.00	98.00	128.00	.....	.....
	103.50	*103.50*	*105.50*	*105.50*	*105.50*	*106.00*	*122.00*	*115.50*	*115.50*
New York....‡	115.00	118.00	122.00	127.00	127.00	129.00	250.00	.....	.....
	.....	.....	*122.00*	*122.00*	*122.00*	*125.00*	*169.00*	*174.00*	*174.00*
Philadelphia....nl	110.00	112.00	112.00	110.00	112.00	110.00	125.00	.....	.....
	.....	.....	*125.00*	*125.00*	*125.00*	*125.00*	*145.00*	*145.00*	.....
Pittsburgh....nl	135.00	135.00	135.00	135.00	140.00	140.00	165.00	.....	.....
	135.00	*115.00*	*145.00m*	*150.00*	*150.00*	*150.00*	*225.00*	*225.00*	*225.00*
St. Louis....‡n	117.00	119.00	127.00d	127.00d	127.00e	126.00e	.....	.....	.....
	.....	.....	*136.00*	*136.00e*	*136.00e*	*136.00e*	*190.00e*	*190.00e*	*190.00*
San Francisco....nz	*80.00*	*80.00*	*88.00*	*88.00*	*88.00*	*88.00*	*99.00*	*122.00*	*124.00*
Seattle....n†	*64.00*	*68.00*	*71.00*	*71.00*	*71.00*	*78.00*	*85.00*	*90.00*	*90.00*
Toronto....*	86.00a	90.00a	88.00a	86.00a	87.00	87.00a	105.00a	.....	.....
	89.00	*98.00*	*102.00*	*105.00*	*108.00*	*118.00*	*135.00*	*150.00*	*150.00*

	LONG LEAF Y. P. Merchantable grade up to 20 ft.		FIR PLYWOOD ⅜" Interior plyscored, C-D gr.	FIR PLYWOOD ¾" Ply-form grade*
	2x12 Rgh	12x12 Rgh		
Atlanta....n†	$135.00	$155.00	$125.00	$270.00
Baltimore....o	175.00	190.00	175.00	275.00
Birmingham....n†r	120.00	173.00	120.30	204.50
Boston....ss	.....	.....	155.00c	285.00c
Chicago....**	160.00	160.00	147.00	240.00
Cincinnati....n*	138.00	125.00	92.00f	170.00f
Cleveland....o**	.....	.....	119.00a	200.00
Dallas....‡	138.00	180.00	112.50ac	200.00ac
Denver....n*	.....	.....	146.50	252.00
Detroit....‡	153.50	.....	150.00gc	225.00gc
Kansas City....tn	.....	.....	135.00	215.00
Los Angeles....znu	.....	.....	128.00	225.00
Minneapolis....os	.....	.....	195.00	305.00
Montreal....*bp	120.00	120.00	119.25	225.95
New Orleans....tn	180.00	185.00	117.19	200.71
New York....‡	250.00	250.00	121.20a	202.60a
Philadelphia....nl	.....	.....	138.00h	220.00h
Pittsburgh....nl	145.00	185.00	225.00	295.00
St. Louis....‡n	.....	.....	165.30achj	253.00achj
San Francisco....nz	.....	.....	90–92h	165–167.00h
Seattle....n†	.....	.....	105.00aeg	196.00aeg
Toronto....*	89.00a	.....	216.00	261.00

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL.

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. *a Spruce. *b Federal tax exempt, add 6% mun. & prov. tax. *c 5M lots. *d 8, 10, & 12 ft. lengths. *e 8 to 16 ft. lengths. *f Hemlock *g No. 1 common. *i 8 ft. lengths. *k No. 3 common. *l Add 2% sales tax. *n Less 2% disc. 10 days. *o Less 2% disc. 10th. *p Less 1% disc. 10 days. *q fir: $80.25 in truck lots, fob job or CL, f.o.b. city. *r For f.o.b. city price add $8 for pine, $38 for fir eff. 1/1/58. *s asd trucklots. *t trucklots del. *u Retail LCL yard. *v Retail LCL, del. *w add 6% mun. & Prov. tax. *x add 4% sales tax.

* PLYWOOD (Plyform, oiled and edge sealed): Douglas fir, 4' x 8' panels, 5-ply sanded 2 sides, carload lots, delivered per 1000 sq. ft. surface. Seattle base price, interior, moisture resistant, ¼", $151.00; ⅜", $171.00 Exterior, waterproof, ¼", $155.00; ⅜", $175.00. *a Delivered. *c Truck lots. *d A-C exterior. *e LCL. *f less 1%, 5 days. *g less 2% for cash. *h less 2% disc, 10 days. *j add 2% sales tax.

GLASS, EXPLOSIVES, CHEMICALS,

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950a, Single or Double Strength, A quality	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950a, Single or Double Strength, B quality	EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 500 lb. lots
Atlanta	78%	80%g	$0.2495
Baltimore	74%d	74%d	.2695
Birmingham	82%i	82%i	.2495
Boston	72+10%p	72+10%p	.2695
Chicago	72%	72%	.2695
Cincinnati	74%	74%	.2495
Cleveland	74–2–10%	74–2–10%	.2495
Dallas	76%	76%	.2770
Denver	73.5%	73.5%	.2695
Detroit	72–10–10%	72–10–10%	.2695
Kansas City	76–10–10%	76–10–10%	.2695
Los Angeles	$12.88/17.32k	$10.45/14.13k	.2695
Minneapolis	71–10%	71–10%	.2695
Montreal	40–10–5%b	40–10–5%b	.3.20k
New Orleans	76%a	76%a	.2695
New York	79%l	79%l	.5030g
Philadelphia	78%	80%	.2695
Pittsburgh	72%	72%	.2495
St. Louis	72–10–10%mo	72–10–10%mo	.2695
San Francisco	60%	73%	.2695
Seattle	$8.85/11.55kiq	$6.41/8.67kjp	.2695
Toronto	$6.49/9.57k	$5.90/8.70k	

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Glass: *a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b sales tax extra. *c 77% for single strength. *d From 8/15/52 list. *e 77% for double strength. *f Single strength; double strength, 83%. *g From 8/1/58 list. *h ss/da, 40-in. *i 20 boxes min. *j CL quantity. *k eff. 12/58. *l eff. 10/15/58. *m less 2% disc, 10 days. *n less 1% disc, 10 days. *o add 2% sales tax. *p less 1% for cash. *q less 2% for cash

Explosives: Cartridges of 1¼" diameter or over, in standard lengths. *g deliveries in certain areas must be by truck or by truck and boat, requiring extra charge. *h F.o.b. Beloeil (near Montreal), per 100 lb., lots under 2000#, wood cases, forcite, 40%. Forcite 60%, $24.30 In fiber cases: forcite 40%, $24.05; forcite 60%, $25.80.

40% Ammonia Gelatin price ranges in other than urban areas, per lb: (except Seismograph Grades)

	C/L 300,000 lb. lots	10,000 lb. lots	2,000 lb. lots	200 lb. lots
Group 1*	$0.2095	$0.2195	$0.2545	$0.2695
Group 2†	.2170	.2270	.2620	.2770

* All areas except those in Group 2 and N.J. cities of Bayone, Hoboken, Jersey City, No. Bergen, Union City and Weehawken † Florida counties of Manatee, Hardee, Highlands, Okeechobee, St. Lucieand south thereof; Idaho; Maine; Montana; New Mexico counties of Catron, Socorro, Lincoln, De Baca, Roosevelt and south thereof; Texas counties of Bailey, Lamb, Hale, Floyd, Motley, Cottle, Hardeman, Foard, Knox, Haskell, Jones, Taylor, Coleman, McCulloch, San Saba, Burnet, Williamson, Milan, Robertson, Leon, Houston, Angelina, Nacogdoches, Shelby and south thereof.

PILES, TIES

PILES

Prices per linear foot, fir and pine, rough peeled, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine under fifty feet based on freight from mid-South, over fifty feet, on freight from deep South.

Dimensions	Points	Length	By Rail Pine*§ R	By Rail Fir R
12" at butt	6-in.	30 to 39-ft.	$0.42a	....
12"—2-ft. from butt	6-in.	40 to 44-ft.	.91	....
12"—2-ft. from butt	6-in.	45 to 49-ft.	.97	....
12"—2-ft. from butt	6-in.	50 to 54-ft.	1.01	....
12"—2-ft. from butt	6-in.	55 to 59-ft.	1.07	....
14"—2-ft. from butt	6-in.	60 to 64-ft.	1.14	....
14"—2-ft. from butt	6-in.	65 to 69-ft.	1.21	....
14"—2-ft. from butt	6-in.	70 to 74-ft.	1.34	1.40
14"—2-ft. from butt	6-in.	75 to 79-ft.	1.41	1.40
14"—2-ft. from butt	5-in.	80 to 84-ft.	1.54	1.45
14"—2-ft. from butt	5-in.	85 to 89-ft.	1.67	1.54

* Pine piling over 90 feet available only in limited quantities. § ASTM Class B
* a, trucked in from N. J.

RAILWAY TIES

Prices f.o.b. per tie box carload lots:		6" x 8" x 8' Untr.	6" x 8" x 8' Tr.	7" x 8" x 8'6" Untr.	7" x 8" x 8'6" Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak	2.85–3.00	4.00a–4.10	3.90	4.75–5.00
New York	Mixed Hardwood	3.45	5.10	4.30	6.50
	Mixed Oak	3.55	5.20	4.40	6.60
Philadelphia	Mixed Oak	3.70i	3.87	.....	4.57
St. Louis	Mixed Oak	2.65	3.75a	3.10h	4.20ah
San Francisco	Douglas Fir	2.10e	3.42ef	2.44ef	3.72ea

Tr.—Treated; Untr.—Untreated. a Creosoted. e Empty cell. e Green f.o.b. cars. g 7 x 9 x 8'8" * Add 75¢/tie freight charge to Birmingham. *h 7" x 9" x 9½". *i Mixed Hardwood

CHEMICALS

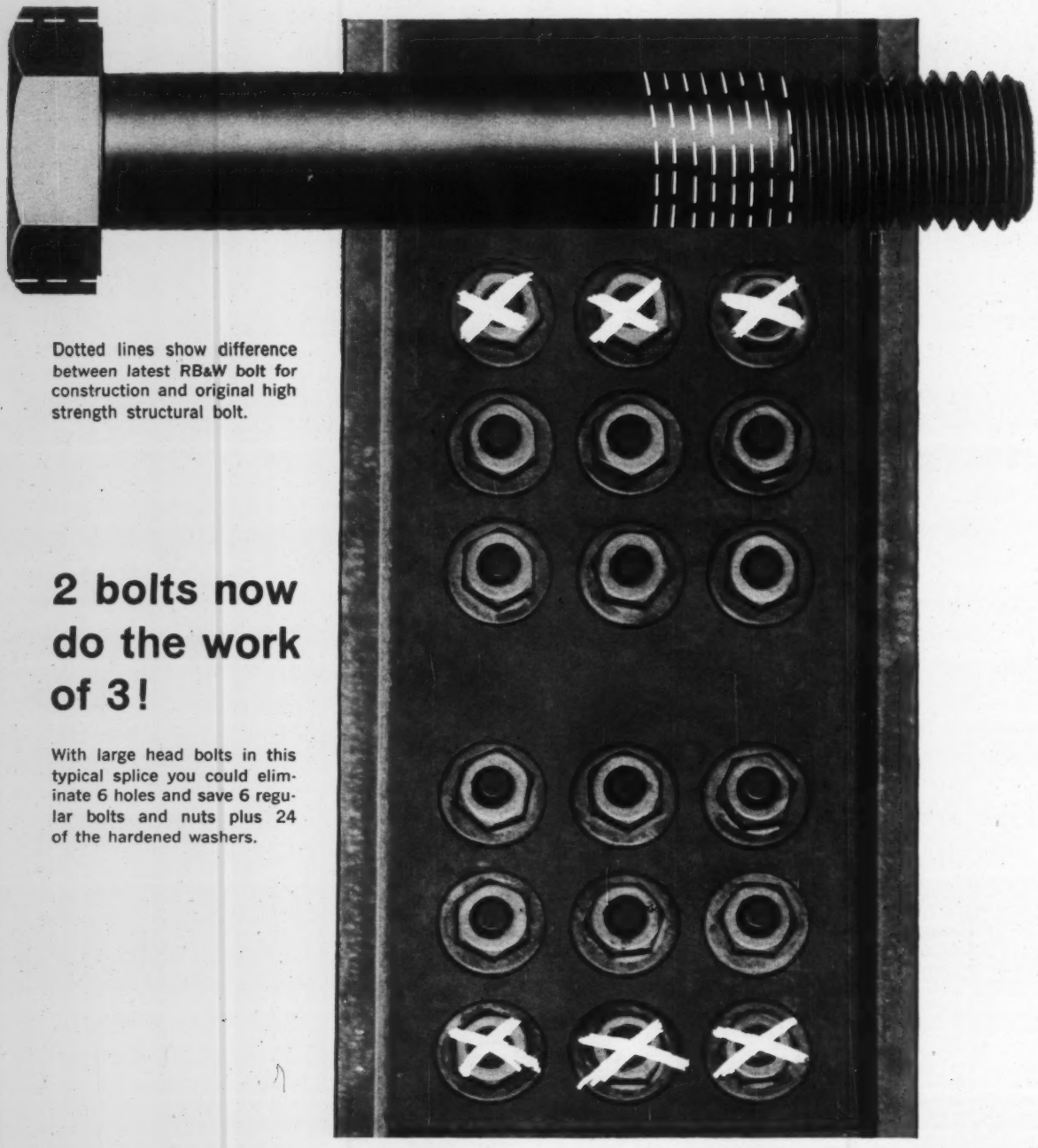
Water, sewage treatment, road work, carlots, f.o.b. works

Chlorine cylinders, liquid, per lb. freight allowed, N.Y. State	$ .11
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, ton	62.00
Silicate of soda, 52 deg., in drums, per 100 lb.	2.65
Soda ash, 58%, in paper bags; per 100 lb. dense	1.90
Sulphate of aluminum, commercial, in 100-lb. bags	2.05
Sulphate of copper in bags, 99% per 100 lb., reg., 25.2% copper content	13.00

See following ENR issues for OTHER PRICES:

- Wage Rates, Building Board, Lath, Insulation: Last, June 30; Next, July 28.
- Cement Aggregate, Ready-Mixed Concrete, Asphalt: Last, July 7; Next, Aug. 4.
- Iron & Steel Products, Pipe. Last, July 14; Next, Aug. 11.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, June 28; Next, July 28.

NEW approved RB&W save you 40%



Dotted lines show difference between latest RB&W bolt for construction and original high strength structural bolt.

2 bolts now do the work of 3!

With large head bolts in this typical splice you could eliminate 6 holes and save 6 regular bolts and nuts plus 24 of the hardened washers.

LARGEST INDEPENDENT PRODUCER OF

High Strength Bolts in bearing connections

- **New, shorter thread length increases allowable shear strength--permits 2 bolts to replace 3 rivets**
- **Heavy head design eliminates one of the two washers**
- **Fully tested and approved by AISC and Research Council on Riveted and Bolted Structural Joints**

RB&W
115th year

Plants at: Port Chester, N.Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. Additional sales offices at: Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. Sales agents at: Cleveland; Milwaukee; New Orleans; Denver, Fargo.

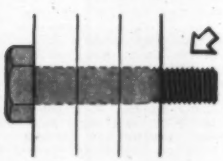
HERE'S the next big advance in structural steel connections. RB&W High Strength Bolts with new head and thread design are now ready to take another big bite out of construction costs.

Erectors will save on total fastening time and material costs. Shop fabricators will turn out tonnage faster than ever before, cut the cost of fabricated steel to a new competitive level. Designers will be able to reduce the number of holes at joints and still get specified total shear strength.

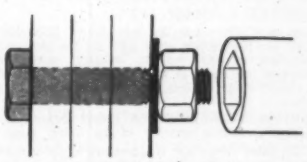
With new large head, this bolt ends need for one of the two hardened washers. With shorter thread length, it excludes threaded section from shear plane in connections, enabling tensile/shear ratio to be changed to 1:1.1 from the former 1:0.75. This means that instead of using one bolt for one rivet, you can use two new bolts where you would need three rivets or three regular high strength bolts.

RB&W is proud of its significant contribution to this engineering breakthrough—one which has been extensively tested, and approved by the appropriate bodies.

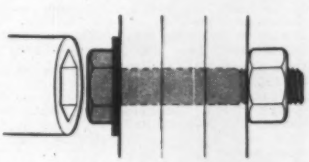
Once again you see solid evidence that the strongest (and clearly the most economical) fasteners for structural joints are high strength bolts. For the best of such bolts, specify RB&W. You get full conformance to ASTM A 325, and *certified* quality. For more data, contact Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N.Y.



NO THREAD IN SHEAR PLANE of joint. This increases effective shear area of bolt, allows higher working stresses, so that 1/3 fewer bolts provide specified design strength in bearing-type joint.



ELIMINATE 50% OF WASHERS at the least. Large head gives adequate bearing area to prevent crushing of seat. Washer now goes only under nut or bolt head, whichever is rotated in wrenching.



EASY, FAST INSTALLATION. With standard holes 1/16" oversize, bolts can be inserted by hand even when holes are misaligned 1/16". Reaming is virtually eliminated. Now tighten from head or nut—with same wrench.

HIGH STRENGTH BOLTS FOR CONSTRUCTION

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

CALLING FOR BIDS

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **Me., Limestone** — TAXIWAY RUNWAY ACCESS — BA 7/25—Base Procurement Office, Loring Air Force Base, taxiway runway access, Loring Air Force Base, IFB 17-600-60-97.

Me., Farmington—HIGH SCHOOL—BA 7/27—School Dist. No. 9, High St., high school addn., $400,000. Plans deposit $50. Extended date. George Head, 115 Lisbon St., Lewiston, Me., archt. Maine Engineering Service Co., 133 Court St., Auburn, Me., mech. engr. CD 6/29.

▲† **Conn., Groton**—HOUSING—BA 8/17—Area P. Wks. Office, Room 633, Federal Office Bldg., 90 Church St., New York, N. Y., 500 unit, 1 story Capehart Housing Submarine Base, Second Increment, Spec. No. 31970-60. Plans deposit $200. (Correction—bid date). CD 7/5.

BUILDINGS—BA

Me., Portland—Y.W.C.A.—BA 7/26—Young Women's Christian Assoc., 120 Free St. (selected list bidders), Y.W.C.A. bldg., Spring St. $500,000. Wadsworth & Boston, 57 Exchange St., Portland, Me., archts. Bids Feb. 2 rejected. CD 12/23/59.

Mass., North Easton — DORMITORY — BA 7/26 — The Foundation of Our Lady of Holy Cross, Inc., c/o Stonehill College, Washington St., men's dormitory. $700,000. Plans deposit $50. Emery J. Laliberte, 53 Moraine St., Brockton, Mass., archt. CD 2/4.

HEAVY CONSTRUCTION—LB & CA

Charles Tedesca, 98 Roslindale Ave., Roslindale, Mass., LB $121,383, est. $120,000, hy. reconstr. PW Dist. 7, Carruth St., Clermont St., Deering, Elmer and Hiawatha Rds., Dorchester, BOSTON, MASS. City, P. Wks. Dpt., City Hall Annex, Boston, Mass. Bids June 30. CD 6/24.

Chicago Bridge & Iron Co., 1305 W. 105 St., Chicago, Ill., CA $200,000, second 2 m.g. stand pipe on Shingle Hill, West Haven, CONNECTICUT. New Haven Water Co., 100 Crown St., New Haven, Conn. Awarded July 6. CD 5/22/57.

▲ **Maskel Constr. Co., Inc.,** Rte. 5, South Windsor, Conn., LB $579,483 (4 bidders), Contract 1, 41,477 ft. 6-12 in. clay and cement asbestos pipe sanitary sewers, various highways and 120 manholes, 1 underground pumping station, GLASTONBURY, CONN. Town, Sewer Comn., Town Hall, Glastonbury, Conn. Bids June 28. CD 6/15.

Barr Constr. Co., 250 Allen Ave., Meriden, Conn., LB $590,045 (4 bidders), Contract 2, 30,909 ft. 6-19 in. clay and cement asbestos pipe sanitary sewers, various highways, and 90 manholes, 1 underground pumping station (Glastonbury, Conn.).

Geer Constr. Co., Inc., River Road, Lisbon (P.O. Norwick), Conn., LB $143,423 (6 bidders), South End Road and Milldale intercepting sewers, SOUTHINGTON, CONN. Town, Selectmen's Office, Town Hall, Southington, Conn. Bids July 1. CD 6/10.

C & B Building Co., 15 Clinton St., Newport, R. I., LB $84,720, Contract 7, water pumping station, NORTH KINGSTON, R. I. Town, Purch. Agent, Town Hall, North Kingston, R. I. Bids July 7. CD 6/29.

▲ **M. A. Gamino Constr. Co.,** 728 Valley St., Providence, R. I., CA $1,565,445, bulkhead extension Municipal Wharf, PROVIDENCE, R. I. City, City Hall, Providence, R. I. CD 6/27, under LB.

† **Stamwell Constr. Co.,** 33 Hurley St., Cambridge, Mass., LB $363,620, est. $400,000-$500,000, research and professional library, L. G. Hanscom Field, ENG-19-016-60-77, BEDFORD, MASS. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids June 21. CD 6/2.

Millman Electric Co., 14 Chilton St., Plymouth, Mass., LB $305,600, est. $303,700, Mass. P-703, Contr. 1, fire protection, Mass. Correctional Institute, BRIDGEWATER, MASS. Commonwealth of Mass., Dpt. Correction, Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. John Guarino, 2 Lexington St., East Boston, Mass., archt.

Drake & Townsend, Inc., 11 W. 42 St., New York, N. Y., CA $600,000, liquid propane gas underground tanks and control bldgs. Fodor Lane, TRUMBULL, CONN. Bridgeport Gas Co., 815 Main St., Bridgeport, Conn. Awarded July 7. CD 3/10.

Coridan Electric Co., 329 Robbins Rd., Kensington, Conn., LB $153,800, electrical system, Music and Dramatics Bldg., Central Connecticut State College, NEW BRITAIN, CONN. State P. Wks. Dpt., 165 Capitol Ave., Hartford, Conn. CD 1/13/49.

Kensington Development Corp., 500 Kensington Ave., Meriden, Conn., CA $55,000, site preparation for shopping center, Chamberlain Highway, MERIDEN, CONN. Ros Sangiovanni, 21 Bailey Ave., Meriden, Conn. Rossetti & Mileto, 185 Main St., Bristol, Conn., archts. Awarded July 7. CD 6/1, under Commercial Buildings.

BUILDINGS—LB & CA

Harvey Constr. Co., Inc., 1662 Elm St., Manchester, N. H., LB $996,000, Base Bid, JUNIOR HIGH SCHOOL, Opechee Park, LACONIA, N. H. City, 26 Academy St., Laconia, N. H. Bids June 17. CD 6/27.

Theodore Loranger & Sons, 404 Nash Rd., New Bedford, Mass., LB $410,810, est. $400,000, Proj. MASS-19-CH 45 H & 109, NURSES DORMITORY and SCHOOL, ATTLEBORO, MASS. Sturdy Memorial Hospital, 211 Park St., Attleboro, Mass. Bids June 30. CD 6/10.

Clemenzi Constr. Co., Inc., 50 Rantock St., Beverly, Mass., CA $400,000, MOTEL, Rte. 128, DANVERS-BEVERLY, MASS. King's Grant Realty Corp., c/o James H. Boulger, Jr., archt., 150 Washington St., Salem, Mass. CD 10/22/59, under Gables Motel Corp. as owner.

▲ **Daniel O'Connell's Sons Inc.,** 480 Hampden St., Holyoke, Mass., CA $1,638,114, est. $1,750,000, INFIRMARY, Brightside Mt. Marie-Springfield Rd., HOLYOKE, MASS. Providence Home for Children, c/o R. C. Diocese, 62 Elliot St., Springfield, Mass. Bids June 30. CD 7/7, under LB.

Vappi & Co., Inc., 240 Sidney St., Cambridge, Mass., CA Approx. $200,000, WAREHOUSE, Bear Hill Industrial Plant, WALTHAM, MASS. Owner, c/o Symmes, Maini, Hryniewica & McKee, archts., 604 Putnam Ave., Cambridge, Mass. Bids July 7. CD 6/28.

LaRell Constr., Inc., 529 Ferry St., Everett, Mass., LB $153,432, est. $160,000, SANITORIUM LABORATORY addn., WALTHAM, MASS. Middlesex County Comr., Superior Court House, East Cambridge, Mass. Curtin & Riley, 45 Newbury St., Boston, Mass., archts.

Agostini Constr. Co., Inc., 70 Bacon St., Pawtucket, R. I., CA $500,000, BOWLING ALLEY and recreation, near Huntington Ave. Expressway, CRANSTON, R. I. Langs Bowlarama, c/o Contractor.

▲ **H. Wales Lines Co.,** 134 State St., Meriden, Conn., CA $1,900,000, 216,000 sq. ft., 2 story, 360 x 600 ft. PLANT addn. East Johnson Rd., CHESHIRE, CONN. Waterbury-Farrell Foundry & Machine Co., 453 Bank St., Waterbury, Conn. Awarded July 8. CD 7/11.

Joseph Kovarovics, West Ashford (P. O. Warrenville), Conn., LB $130,000, two 13,000 sq. ft. FACTORIES, DANIELSON, CONN., C. E. M. Co., 24 School St., Danielson, Conn. Bids June 30. CD 6/22.

Abel Builders, Inc., Plainville Ave., Farmington, Conn., CA $500,000, FACTORY, Shepard Lane, Farmington Industrial Park, FARMINGTON, CONN. Connecticut Spring Co., 1841 Broad St., Hartford, Conn. Walter F. Green, Jr., 14 W. Main St., Avon, Conn., engr. Awarded July 5.

Abel Builders, Inc., Plainville Ave., Farmington, Conn., Owner Builds, $560,000, 56 HOUSES, Wells Drive, FARMINGTON, CONN. CD 6/15.

Abraham Abel Et. Al., Box 364, Danbury, Conn., Owner Builds, $500,000, MOTEL, DANBURY, CONN.

Douglas E. Dahm Co., Middle Road, Farmington, Conn., LB $726,056, academy school conversion to Junior High SCHOOL, GLASTONBURY, CONN. Town, P. Bldg. Comn., Main St., Glastonbury, Conn. Bids June 28. CD 6/7.

Adams Erikson, 45 E. Putnam Ave., Greenwich, Conn., CA $420,000, RELIGIOUS EDUCATION, ADMINISTRATION, CHAPEL, E. Putnam Ave., GREENWICH, CONN. Second Congregational Church, E. Putnam Ave., Greenwich, Conn. Awarded July 7. CD 2/15.

Radco Inc., 747 Farmington Ave., Kensington, Conn., Owner Builds, $502,600, 28 HOUSES, Woodland Heights, West Lane, KENSINGTON, CONN.

Joseph Vitale Constr. Co., Inc., 336 Pequonnock St., Bridgeport, Conn., LB $239,000, (6 bidders), CHAPEL, Connecticut Hospital Proj. BI-I-161, MIDDLETOWN, CONN. Bids July 6. CD 6/10.

▲ **Hayes Constr. Co.,** 1285 East St., New Britain, Conn., LB $1,925,000, (7 bidders), Proj. CH CONN 13-D, Foss Hill DORMITORIES, Group 2, MIDDLETOWN, CONN. Wesleyan University, 285 Court St., Middletown, Conn. Bids June 29. CD 6/27.

▲ **Casey Constr. Co.,** 3000 Whitney Ave., Hamden, Conn., CA $2,450,000, 140 HOUSES, Bull Hill Lane, WEST HAVEN, CONN. Linehan Development Corp., 3000 Whitney Ave., Hamden, Conn. Awarded July 8.

Dwight Building Co., 109 Stanford St., Hamden, Conn., LB $1,000,000, expand Farnam operating suite, consolidate LABORATORY space, reconstruct diagnostic radiology area for chemotherapy and cardiac programs, Charles A. Dana Operating Pavillion, NEW HAVEN, CONN. Grace-New Haven Community Hospital, 789 Howard Ave., New Haven, Conn. Bids June 14. CD 2/4.

▲ **Argo Builders, Inc.,** Brainard Rd., Thompsonville, Conn., Owner Builds, $3,415,000, 287 HOUSES, Woodland Gardens, Brainard Rd., THOMPSONVILLE, CONN.

Ogden Homes, Inc., New Park Ave., West Hartford, Conn., CA $880,000, APARTMENTS, Windsor Ave., WINDSOR, CONN. Windsor Gardens, Inc., New Park Ave., West Hartford, Conn. Awarded July 7.

William J. Lyons Constr. Co., Inc., 2 Wilton Ave., Norwalk, Conn., CA $401,000, MUSEUM, Woodside Lane, WESTPORT, CONN. Mid-Fairfield County Youth Museum, 23 Main St., Westport, Conn. Awarded July 7.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **N. J., Bordentown**—DRIVEWAY EXTENSION—BA 7/25—General Services Admin., 250 Hudson St., New York 13, N. Y., driveway extension at U. S. Post Office, Job Order No. 80,201.

New York—BA 7/25—President Richmond Boro, Boro Hall, St. George, Staten Island 1, imprvt. Seaside Blvd., Winfield St. to Fort Wadsworth, Contr. No. 2, Richmond Boro. CD 9/10/57.

Pa., Phila.—TERMINAL APRON EXPANSION—BA 7/25—Dpt. Procurement, City Hall Annex, paving, grading, drainage, terminal apron expansion, Terminal bldg. extension, Philadelphia International Airport, Bid 6664. CD 5/7/59.

N. Y., Idlewild—AIRPORT IMPRVTS.—BA 7/26—The Port of New York Auth., in the Office of the Chief Engineer, Room 1100, 111 Eighth Ave., New York, Zone 11, International Arrival & Airline Wing Bldgs., interior sign sys. alters., New York International Airport, Contr. NYA-410.012; parking field alters, pools and aprons, Contr. NYA-410.011. Plans deposit $50. CD 9/20/57.

Pa., Phila.—BA 7/26—Dpt. Procurement, City Hall Annex, Bid No. 2598, water main Bustleton Ave. from Red Lion Rd. to Veree Rd.; Bid 2599, water main Wharton St. from Warfield St. to East 35 St. CD 11/8/58.

N. Y., Idlewild—AIRPORT IMPRVTS.—BA 7/27—The Port of New York Auth., Room 900, 111 Eighth Ave., New York, Zone 11, installing switchgear, relocating equipment and circuits incidental to these installations at Lighting Vaults 1, 2, 3, 4; underpass pumphouse; federal bldg.; fuel storage area; temporary terminal bldg.; Hangars 1, 2; Hangars 3, 4, 5, New York International Airport, Contr. O & M 580. Plans deposit $10. CD 9/20/57.

† **Kentucky and Ohio**—BA 7/28—U. S. Eng., 502 8 St., Huntington 1, W. Va., raising sewer outfalls and misc. work at various locations for Greenup Locks and Dam Projects, CIVENG-46-022-60-98. Plans deposit $9. CD 9/29.

† **Maryland and District of Columbia**—BA 7/28—U. S. Eng., 1st and Douglas S. NW., Wash. 25, D. C., maintenance dredging, Bladensburg, Maryland to Pennsylvania RR freight bridge, Anacostia River. Civeng. 49-080-61-1. CD 3/11/55.

NEW JERSEY—BA 7/28—State Hy. Dpt., 1035 Parkway Ave., Trenton,

Passaic and Essex Counties—resurf. 5 mi. Rte. 23 from Wayne Twp. southerly to Claremont Ave., Verona. CD 4/18/55.

N. Y., Springville—BA 8/1—Village, Village Hall, sewage treatment plant. $250,000. Plans deposit $25. Senior, Bissell & Bronkie, 5757 Main St., Williamsville, N. Y., engrs. CD 1/16/59.

MARYLAND—BA 8/2—State Rds. Comn., 300 W. Preston St., Baltimore, Zone 3,

Anne Arundel and Baltimore Counties—5 span steel beam bridge, 50 ft. each over Patapsco River, Hammonds Ferry Rd., Wades. AA 571-515 and B-795-415. $100,000. Plans deposit $15. A. L. Grubb, c/o owner, ch. engr.

Md., Rockville—BA 8/3—Montgomery Co., County Office Bldg., Seven Locks Rd. from Bradley Blvd. north to Station 188 plus 00, FAP S-0481(1) M-593-317. Plans deposit $10.

Md., Rockville—BA 8/17—Montgomery Co., County Office Bldg., Wayne Ave. from Dartmouth Ave. to easterly limits, Sligo Creek Park, FAP US 795(1) M 588-317 1018-D. Plans deposit $10.

Md., Rockville—BA 8/18—Montgomery Co., County Office Bldg., Randolph Rd. from Georgia Ave. to Denley Rd. FAP US 598(2) M 567-317 806 BC. Plans deposit $10.

BUILDINGS—BA

▲ **Md., Towson**—DEPARTMENT STORE, etc.—BA 7/22—Food Fair Properties, 355 Lexington Ave., New York, N. Y., (selected list bidders), 1 story, 120,000 sq. ft. brick, department store, auto service bldg., parking area. Over $1,000,000. Lathrop Douglas, 518 5 Ave., New York, N. Y., archt. Throop & Feiden, 207 E. 37 St., New York, N. Y., engrs.

▲ **N. Y., Tarrytown**—DINING HALL, etc.—BA 7/26—Marymount College, Tarrytown, 2 story dining hall and auditorium. Extended date. $2,500,000. Eggers & Higgins, 100 E. 42 St., New York 17, N. Y., archts. CD 6/3.

▲ **N. Y., West New Brighton**—HOUSING—BA 8/2—New York City Housing Auth., 299 Broadway, New York 7, fdns. and general contract, heating and ventilating, electric and plumbing work and furnishing and installation of elevators, West Brighton Houses, Proj. No. NY-5-40, Section I, which incls. bldgs. Nos. 1 to 8 inclusive, Boiler Room and Community Center in Bldg. No. 6 and garage, Henderson Ave., Broadway, Castleton Ave. and Alaska St., Richmond Boro. Plans deposit $75, $25 for installation of elevators. CD 6/22 under LB.

▲ **Pa., Harrisburg**—SCHOOL—BA 8/2—Central Dauphin School Dist., 4600 Locust Lane, Central Dauphin East High School, Rutherford Rd., Londonderry Rd., Lower Paxton Twp. $3,000,000. Plans deposit $50. W. L. Murray & Assocs., 1600 N. 2 St., archts. CD 7/24.

Pa., Edinboro—DINING HALL—BA 8/3—General State Auth., 18th and Herr Sts., Harrisburg, dining hall and kitchen, Edinboro State College, $600,000. Plans deposit $50. Johnson, Gray & Assocs., 225 Commerce Bldg., Erie, archts. CD 5/2 under LB.

▲ **N. Y., Brooklyn**—SCHOOL—BA 8/4—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, P. S. 305. $2,500,000. Michael L. Radoslovich, c/o owner, archt. CD 12/9/58.

▲† **D. C., Wash.**—FEDERAL OFFICE—BA 8/17—General Services Admin., 19 and F Sts. N.W., Zone 25, federal office No. 9 (Civil Service Commission) Proj. 49901 Contract GS R 3-B-8021. Plans deposit $75. Hellmuth, Obatta & Kassabaum, Inc., Loebel, Schlossman & Bennett, 333 N. Michigan Ave., Chicago, Ill., archts.

HEAVY CONSTRUCTION—LB & CA

▲ **President Richmond Boro**, Boro Hall, St. George, Staten Island 1, N. Y., rejected bids May 17, Imprvt Contr. No. 2, regulating, grading, paving, curbs, sidewalks and utilities, Winfield St. to Fort Wadsworth, Richmond Boro, NEW YORK. LB $2,624,350. CD 5/23 under LB.

Lizza & Sons, Inc., 152 South St., Oyster Bay, N. Y., LB $197,616 est. $207,837 (1 bidder) Contr. 926-P, pavement, drainage structures, Hall's Pond, West Hempstead, MINEOLA, N. Y. Dpt. P. Wks. Nassau Co., Franklin Ave., Mineola, N. Y. Bids June 28.

Edenwald Contr. Co., 151-45 6 Rd., Whitestone, N. Y., LB $207,114 (9 bidders) playground, Sheepshead Bay High School, Avenue Y, between Coyle and Batchelder Sts., Brooklyn Boro, Contr. B-308-160, BROOKLYN, N. Y. Comr. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York 21, N. Y. Bids July 8. CD 6/29.

▲ **Horn Constr. Co.**, 2174 Hewlett Ave., Merrick, N. Y., CA $1,635,417, est. $1,300,000, Trevor Park, incl. road from Warburton Ave. to Hudson River, bridge over railroad tracks, bulkheads, YONKERS, N. Y. City, City Hall, Yonkers, N. Y. Awarded June 30. CD 5/18, under LB.

McElwee Courbis Constr. Co., P.O. Box 1236, Camden, N. J., LB $246,882, pumping stations, Cooper River, CAMDEN, N. J. City, Purchasing Bd., City Hall, Camden, N. J. Havens & Emerson, 233 Broadway, New York, N. Y., engrs. CD 1/22/59.

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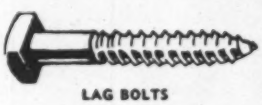

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▲ **Procurement Dpt.**, City Hall Annex, Phila., Pa., rejected bids May 16, dredging Philadelphia International Airport runway, $1,166,641, PHILA., PA. CD 5/26, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 7/7.

N. J.—George M. Brewster & Son, Inc., 275 W. Fort Lee Rd., Bogota, N. J., LB **$6,802,786**, over 4,000,000 ft. sand drains, Interstate Rte. 95, Overpeck Creek meadow area, Bergen Co. CD 6/22.

N. J.—American Dredging Co., 12 S. 12 St., Phila., Pa., LB **$837,001**, (4 bidders), removing 1,300,000 cu. yd. unsuitable materials from a former sanitary landfill area near Teaneck Rd., Bergen Co.

Geo. Brewster Co., Rte. 17, Bogota, N. J., CA **$139,321**, repaving portions Washington Ave., Dumont, Livingston Sts., Northvale, and Main St., Fort Lee, HACKENSACK, N. J. Bd. Freeholders, Admin. Bldg., Hackensack, N. J. Roscoe McClave, Admin. Bldg., Hackensack, N. J., engr. CD 5/21/56.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa., CA **$14,247,188**, 50,000 seat stadium, West End of West Capital St. Bridge, WASH., D. C. D. C. Govt., 499 Pa. Ave. N.W., Wash., D. C. Bids June 10. CD 6/14, under LB.

BUILDINGS—LB & CA

▲ **Marrano Constr. Co., Inc.**, 3320 Genesee, Cheektowaga, N. Y., Owners Build, **$3,000,000**, 175 HOMES, Hillview Acres, Transit and Rhem Rds. and Columbus Dr., DEPEW, N. Y.

Riviera Towers Apartments of Fort Lee, 138 Madison Ave., Passaic, N. J., Owner Builds, **$500,000**, 5 story APARTMENT, Center Ave., FORT LEE, N. J. Leonard G. Feinen, 320 Lincoln Ave., Hasbrouck Heights, N. J., archt.

Janovic Bros., Inc., 45 Magnolia Ave., Montvale, N. J., Owner Builds, **$700,000**, 25 HOUSES on new streets off Magnolia Ave., MONTVALE, N. J.

Martin Country Estates, 334 Route 17, Paramus, N. J., Owner Builds, **$500,000**, 20 HOUSES, Pennsylvania Ave., MONTVALE, N. J. C. J. Kordys & E. A. Oldziey, 1379 Hamburg Turnpike, Wayne, N. J., archts.

▲ **Walter Kidde Co.**, 140 Cedar St., New York, N. Y., CA **$4,500,000**, design and construct RESEARCH LABORATORY, Mt. Tabor Rd., MORRIS PLAINS, N. J. Warner Lambert Pharmaceutical Co., 201 Mt. Tabor Rd., Morris Plains, N. J. CD 5/18.

▲ **Garden Estates**, 663 Main St., Passaic, N. J., Separate Contracts, **$1,380,000**, 138 RESIDENCES, Rte. 33 and Linwood Ave., TRENTON, N. J.

Thomas Hassert Co., 1245 Chesterfield Rd., Barrington, N. J., LB **$450,000**, CHURCH, Grand Ave., WEST TRENTON, N. J. Diocese of Trenton, Parish of Our Lady of Good Counsel, 570 Grand Ave., West Trenton, N. J. Thomas H. Moran, 549 Jefferson Rd., Princeton, N. J., archt. CD 3/11/59.

Simpson Constr. Co., Toms River, N. J., CA Approx. **$150,000**, MACHINE SHOP addn., alterations, TOMS RIVER, N. J. Cincinnati Chemical Corp., Toms River, N. J. Bids Mar. 18. CD 3/9.

Arthur Schwartz, Glenside, Pa., Separate Contracts, **$400,000**, four 70 unit APARTMENT Bethlehem Pike, AMBLER, PA. Haag & D'Entremont, Jenkintown, Pa., archt.

▲ **Ritter Brothers, Inc.**, 1511 N. Cameron St., Harrisburg, Pa., CA **$2,524,314**, two 14 story APARTMENT bldgs. Verboke, Basin, Sixth and Wallace Sts., HARRISBURG, PA. Harrisburg Housing Auth., 404 City Hall, Harrisburg, Pa. Bids May 19. CD 5/25.

Stofflet & Tillotson, 2043 Eastburn Ave., Phila., Pa., CA **$450,000**, OFFICE, East River Dr., PHILA., PA. Owner, c/o general contractor.

▲ **Coldstream Corp.**, c/o John J. O'Hanlon, Suburban Square Bldg., Ardmore, Pa., Separate Contracts, **$1,000,000**, RESIDENTIAL DEVELOPMENT, Conshohocken State Rd., GLADWYNNE, PA.

Thomas Clauss, Northeast Ave. and Red Lion Rd., Phila., Pa., Separate Contracts, **$400,000**, APARTMENT, 5720 Wessahickon Ave., PHILA., PA. Berg & Rudg, 1411 Walnut St., Phila., Pa., archts.

Elmer R. Halstorm, 517 Juniata St., DuBois, Pa., CA **$143,400**, 1 unit modified army RESERVE CENTER, maintenance shop 1-bay, related site imprvts. utilities, ENG-36-038-60-26, ST. MARYS, PA. U. S. Eng., 925 New Federal Bldg., Pittsburgh, Zone 19, Pa. Bids June 16. CD 5/23.

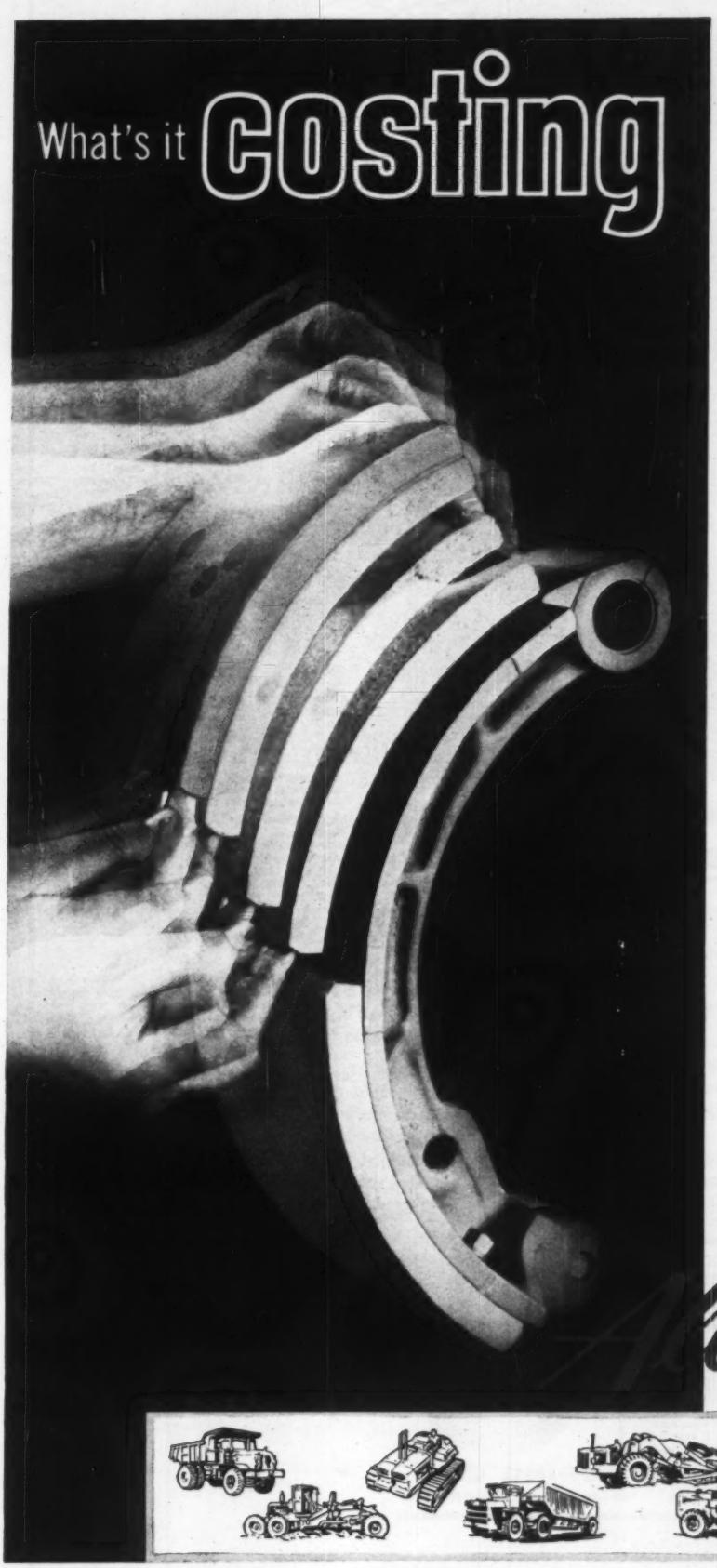
† **Viking Contractors**, 30 W. Biddle St., Baltimore 1, Md., LB **$120,558**, dual battery mess hall, ENG-18-020-60-22, FORT GEORGE G. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md. Bids June 22. CD 9/28/59.

† **Jas. Cox & Son**, 402 E. 25 St., Baltimore 18, Md., LB **$162,826** (12 bidders), rehabilitation barracks, ENG-18-020-60-27, FORT GEORGE G. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md. CD 9/28/59.

Donohoe Constr. Co., 314 Pennsylvania Ave. S.E., Wash., D. C., Owner Builds, **$500,000**, 2 OFFICES, 6th and E Sts. S.W., WASH., D. C. J. M. Hallett, 200 Third St. S.E., Wash., D. C.

Goldsten Bros., 1029 Vermont Ave., N. W., Wash., D. C., CA est. **$450,000**, 3 story, 36-units, masonry APARTMENT, Anacostia Ave., S. E. and 3515 and 17 and 3519 and 21 Minnesota Ave., S. E., WASH., D. C., Minnesota Terrace, Inc., 1029 Vermont Ave., N. W., Wash., D. C. Milton Schwartz, 1721 Walnut St., Phila. 3, Pa., archt.

What's it costing you to reline brakes?



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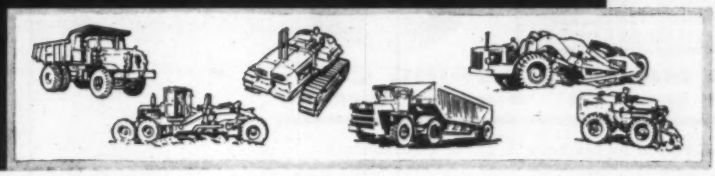

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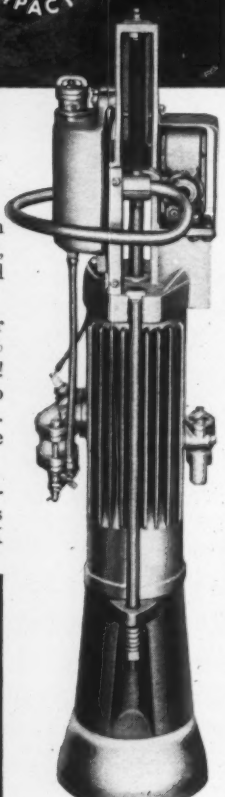

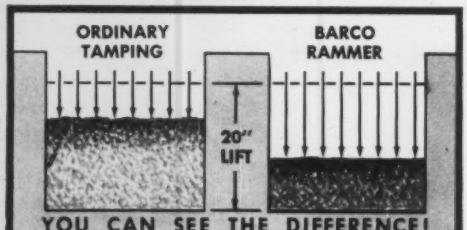

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HEAVY CONSTRUCTION—BA

▲ **Ala., Scottsboro**—GAS SYSTEM—BA 8/8—Waterworks, Sewer & Gas Bd., City Hall, natural gas system $1,000,000. Plans deposit $25. Goodwin Engineers, 2111 7 Ave., S. Birmingham, engr.

▲ **S. C., Greenwood**—BA 8/10—Greenwood Metropolitan Sewer Comm., City Hall, secondary sewage treatment plant $1,000,000. Plans deposit $50., extended date. J. Hearst Coleman Co., 326 Riley St., Greenwood, and Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 6/9.

BUILDINGS—BA

▲ **La., Lafayette**—LIBRARY—BA 7/28—State Bd. Educ., Capitol Bldg., Baton Rouge, 1 story, 45,000 sq ft., masonry, glass and solar tile library, Southwestern University. Plans deposit $80. Perry L. Segura, 128 E. Main St., New Iberia, archt. CD 6/2.

HEAVY CONSTRUCTION—LB & CA

▲ **Clark Bros. Co.**, Contractors, Box 1949, Jackson, Miss., LB $1,670,459 runway pavement 150x7400 ft., parallel and connecting taxiway, aprons for commercial planes, etc. JACKSON, MISS. Jackson Municipal Airport Comn., City Hall, Jackson, Miss. Bids June 29. CD 12/31/58.

▲ LOUISIANA—State Hy. Dpt., Rm. 426, Headquarters Admin. Bldg., Baton Rouge.
U. S. Steel Corp., Gulf Bldg., Houston, Tex., CA $1,123,127 welded steel girder spans 0.179 mi. Lake Charles By Pass (Calcasieu River Bridge) Rte. I-210. SP 450-30-03 FAP No. I-210-1(36)27, Calcasieu Parish. Bids April 20. Awarded May 19. CD 4/26 under LB.

▲ LOUISIANA—State Hy. Dpt., Rm. 426, Headquarters Admin. Bldg., Baton Rouge.
La.—**Delta Paving Co.**, Box 8044, New Orleans, La., CA $2,573,886 Port Allen-Plaquemine Hy., State Rte. LA 1, SP Nos. 50-07-17 & 50-06-24 FAP No. F-399(8), West Baton Rouge and Iberville Parishes. Awarded June 30.
La.—**Texas Bitulithic Co.**, Box 8044, New Orleans, La., CA $2,568,955 Arcadia-Simsboro Hy. (Simsboro West) State Rte. I-20, SP 451-05-07, FAP I-20-2(15)71, Lincoln Parish. Awarded July 6. Bids June 22. CD 6/29 under LB.

▲ TENNESSEE—State Hy. Dpt., Cotton State Bldg., Nashville
Oman Constr. Co., Oman St., Nashville, Tenn., CA $1,346,475 3 bridges, 1 conc. deck girder viaduct over Southern Railway yards, Knoxville, 2 conc. box type drainage structures under viaduct 0.509 mi. Int. Rte. 85 beginning south Heiskill Ave. Knoxville southward to south of Tennessee Ave. Proj. I-75-3(10) 87 Knox Co. Bids June 24. CD 7/7 under LB.

TENNESSEE—State Rd. Dpt., Cotton State Bldg., Nashville.
Tenn.—**Tennessee Asphalt Co.**, P. O. Box 413, Candoro Ave., Knoxville, Tenn., CA $555,126 grading, drainage paving 0.793 mi. State Rte. 63 (Central and East Ave., LaFollette) beginning Indiana St. to NE city limit Proj. U-085-1 (4) grading drainage, 1 conc. box type bridge 0.444 mi. State Rte. 63, beginning NE city limit LaFollette, north easterly, Proj. F 085-1 (2) Campbell Co.

BUILDINGS—LB & CA

▲† **V. Coconato & Sons, Inc.**, 25-14 Broadway, Astoria, N. Y., CA $1,098,000, HOUSING UNITS, Armed Forces Experimental Activity, Camp Peary, NBy 30616-60, WILLIAMSBURG, VA. Dist. P. Wks. Office, Fifth Naval Dist., Room 307, Bldg. N-26, U. S. Naval Base, Norfolk, Zone 11, Va. Bids June 28, awarded July 5. CD 7/1, under LB.

▲† **F. N. Thompson Constr. Co.**, P.O. Box 1474, Charlotte, N. C. and **McDevitt & Street Constr. Co.**, 145 Remount St., Charlotte, N. C., LB $5,556,800, 350 unit armed services HOUSING Proj., Inv. 11-626-60-11, Charleston, S. C. U. S. Air Force Military Air Transport Service, Scott Air Force Base, Ill. Bids July 6. CD 6/13.

Spong Constr. Co., 608½ Harden St., Columbia, S. C., LB $545,345, Fairwold Junior High SCHOOL, COLUMBIA, S. C. City, Bd. Educ., 1311 Marion St., Columbia, S. C. Bids June 30. CD 6/9.

▲ **Daniel Constr. Co.**, 429 N. Main St., Greenville, S. C., CA $35,000,000, nylon yarn mfg. PLANT, IRMO, S. C., Allied Chemical Corp., 61 Broadway, New York, N. Y.

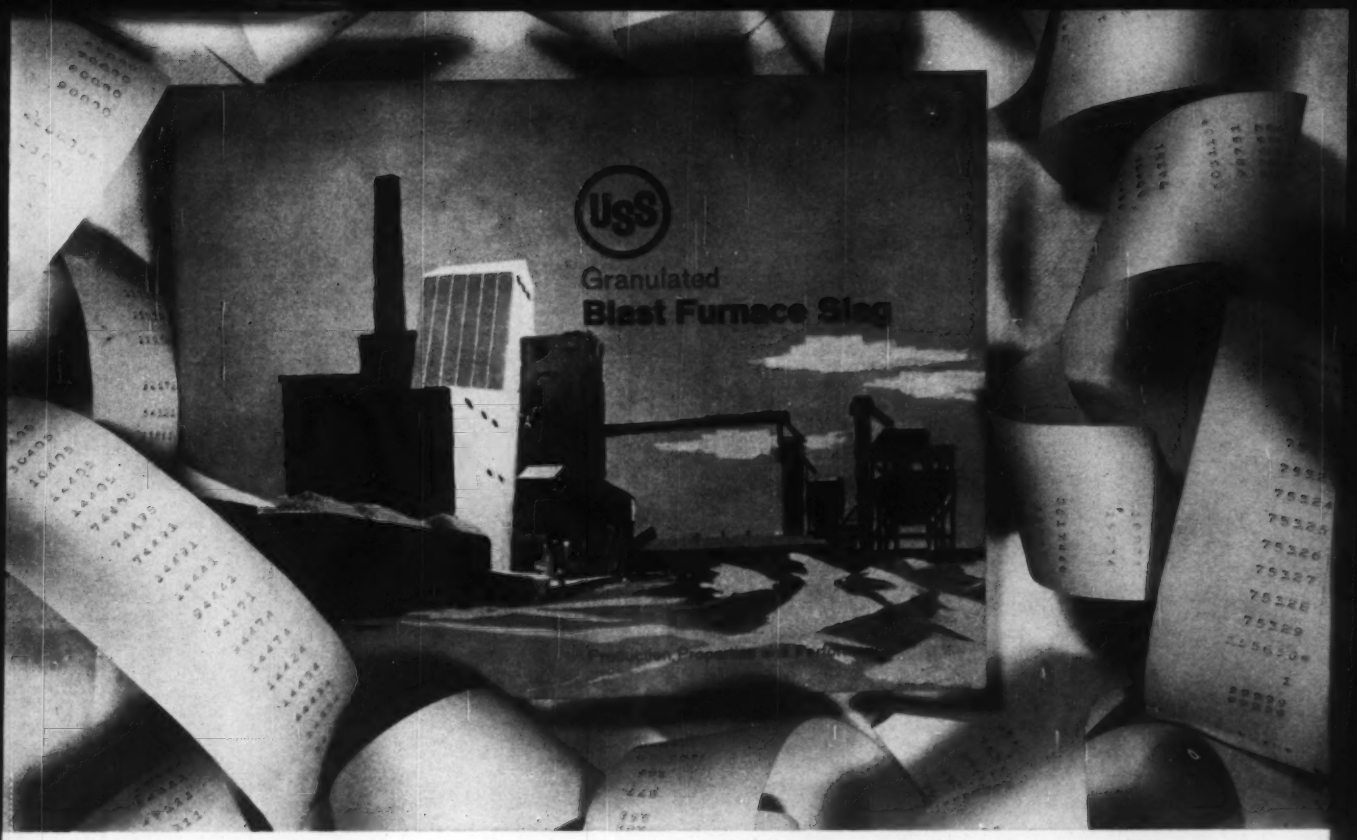
▲† **The Ferber Co.**, 16 Johnson Ave., Hackensack, N. J., LB $3,613,208, Capehart HOUSING Proj., U. S. Naval Air Station, NBy 29126, BRUNSWICK, GA. Dist. P. Wks. Office, 6th Naval Dist., Bldg. 13, U. S. Naval Base, Charleston, S. C. Bids July 7. CD 5/24.

▲ **Mann Constr. Co.**, P.O. Box 6605, Orlando, Fla., LB $1,100,000, 115,000 sq. ft. SHOPPING CENTER, ORLANDO, FLA. Pine Hill Shopping Center, 5137 W. Colonial Dr., Orlando, Fla. Bids July 6.

▲ **Daniel Constr. Co., Inc.**, 429 N. Main St., Greenville, S. C., CA Est. $40,000,000, (6 bidders), glass production PLANT, KINGSPORT, TENN. American-Saint-Gobain Corp., 625 Madison Ave., New York, N. Y. Awarded July 9. CD 9/18.

▲ **Johnson & Galyon Constr. Co.**, P.O. Box 174, Knoxville, Tenn., CA $3,000,000, plexiglas mfg. PLANT, KNOXVILLE, TENN. Rohm & Haas, 730 Dale Ave., Knoxville, Tenn. Bids June 27. CD 6/22.

▲ **J. A. Jones Constr. Co.**, 1805 Hayes St., Nashville Tenn., CA $1,500,000, 144 unit APARTMENT for older people, NASHVILLE, TENN., Nashville Presytery 3201 Hillsboro Rd., Nashville, Tenn. CD 12/24/58.



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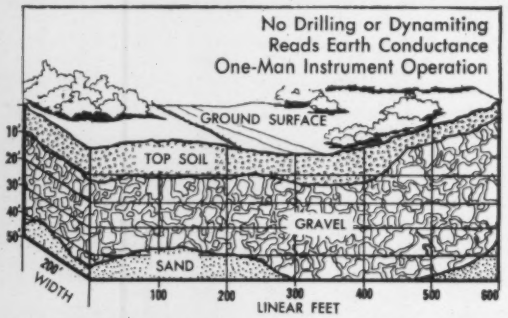
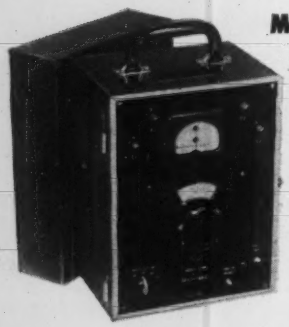
Measurements of earth resistance provide complete data on depth, width and composition of sub-soil layers. Profile at right shows typical detail from measurements made at 100-foot intervals.





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HEAVY CONSTRUCTION—BA

O., Cleveland — NURSERY SCHOOL — BA 7/28 — Day Nursery Assn. of Cleveland, 2050 E. 96th St., Zone 6, (selected list of bidders) nursery school, Cornell Rd., $400,000. Schafer, Flynn & Williams, 1740 E. 12th St., Zone 14, archts. CD 2/26.

O., Pomeroy—SCHOOL—BA 8/2—Pomeroy Exempted School Dist., 30,000 sq. ft. elementary school. Plans deposit $20. John J. Keil and Thomas D. McLaughlin, Colonial Finance Bldg., Lima, archts. CD 12/3.

BUILDINGS—BA

▲ **Ill., Alton**—HOUSING—BA 8/4—Alton Housing Auth., City Hall, 100 unit housing, $1,579,464. Lee Potter Smith & Assoc., 2221 Broadway, Paducah, Ky., archts. William Flippo, Alton, assoc. archt. CD 6/23/59.

▲ **O., Dayton**—LIBRARY—BA 8/10—Dayton and Montgomery Co. Library Assn., City Hall, library, $2,250,000. Plans deposit $50. Extended date. Freeman A. Pretzinger, 1155 Reibold Bldg., Zone 2, archt. CD 6/2.

BUILDINGS—SLC

▲ **O., Cleveland**—SCIENCE CENTER—Western Reserve University, 2040 Adelbert Rd., Zone 6, (selected list of bidders) soon lets contract, SCIENCE CENTER, $5,494,770. Small, Smith, Reeb & Draz, 1010 Euclid Ave., Zone 15, archts. Extended date. CD 5/13.

HEAVY CONSTRUCTION—LB & CA

▲ **R. G. Mattern, Inc.**, 9841 Little Richmond St., Dayton, O. LB $1,479,222, est. $1,552,800 (10 bidders) North Holes Creek Sewer Proj., Sections 1, 2 and 3, DAYTON, O. Bd. Comrs., Montgomery Co., Courthouse, Dayton, O. Bids June 29. CD 1/30/58.

BUILDINGS—LB & CA

▲ **Conte Estates**, 5013 Turney Rd., Cleveland 25, O., Own forces $1,500,000, 67 ranch HOMES, Carol Jean Blvd., Gregory Lane, Jenny Lane and Conte Dr. GARFIELD HEIGHTS, O. CD 5/24.

▲ **Scholz Homes Inc.**, 2001 N. Westwood St., Toledo, O. Owner builds, $1,500,000, 95 HOMES, south edge of village, PERRYSBURG, O.

Wermuth, Inc., 1036 St. Marys St., Fort Wayne, Ind., CA $124,363, 30,000 sq. ft., block PLANT to make stainless alloy wire drawing, FORT WAYNE, IND., Fort Wayne Metals, Inc., 3211 MacArthur Dr., Fort Wayne, Ind. Robinson & Fair, 1924 St. Joe Blvd., Fort Wayne, Ind., archts.

▲† **Kay-Cee Constr. Corp.**, 8115 Ridgeway Ave., Skokie, Ill., LB $1,278,000 (4 bidders) remodeling, extension, POST OFFICE, LANSING, MICH. General Services Admin., 219 S. Clark St., Chicago 4, Ill. Bids June 29. CD 8/18/58.

BUILDINGS—LB & CA

Rzepka Constr. Co., 4913 Van Epps Rd., Cleveland 9, O. Own forces $850,000, 49 Sunshine Estates ranch HOMES, Richards Dr., STRONGSVILLE, O.

Joseph Strassberg, 985 Belwood Dr., Highland Heights, O. Own forces $840,000, 30 tri-level HOMES, Belwood Subdivision HIGHLAND HEIGHTS, O.

Miller-Davis Constr. Co., 4300 North Ave., Northlake, Ill., LB $589,000, Chippewa Junior High SCHOOL, DES PLAINES, ILL. Bd. Educ., School Dist. 62, 727 Algonquin Rd., Des Plaines, Ill. Cone & Dornbusch, 100 N. LaSalle St., Chicago 2, Ill., archt. Bids June 20. CD 2/11.
Riecke Constr. Co., Inc., 410 S. Hager St., Barrington, Ill., LB $402,521, CENTRAL ELEMENTARY SCHOOL, (Des Plaines, Ill.).

Steffes Lumber Co., Inc., 218 S. Harrison St., Batavia, Ill., CA $475,230, (5 bidders) seven bldg. HOUSING Proj. No. Ill. 50-1, Hurst; seventeen bldg. HOUSING Proj. Ill. 50-5, Carterwile, HERRIN, ILL. Williamson County Housing Auth., 601 N. 6th St., Herrin, Ill., Lac Potter Smith & Assocs., 2221 Broadway, Paducah, Ky., archts., Bids June 30. CD 9/14/56.

† **Crosby Contracting Co., Inc.**, 97 Hyatt Place, Yonkers, N. Y., LB $119,000, U. S. Post Office alters., repairs, lighting, OSHKOSH, WIS., General Services Admin., 219 S. Clark St., Chicago 4, Ill. Bids June 27.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

† **Oklahoma**—BA 7/27—Upper Clear Boggy Conservancy Dist., Chamber of Commerce Office, Coalgate, three earthfill floodwater retarding structures, Site 9, Coal Co.; Site 12, Johnston Co.; Site 14, Pontotoc Co., approx. 7 to 9 mi. east and 16 to 20 mi. south of Ada, for the Soil Conservation Service, Inv. UCB-2. CD 10/21.

† **Missouri**—BA 7/28—U. S. Eng., P.O. Box 97, Memphis 1, Tenn., three concrete launching ramps, Wappapello Reservoir, Wappapello, CIVENG 40-041-61-2. $5,000-$10,000.

† **South Dakota**—COMFORT STATION—BA 7/28—National Park Service Dpt. Interior, 1000 Geray St., San Francisco, Calif., comfort station Badlands National Monument IFB BAD-W 292. CD 3/5/56.

† **Tex., Sherman**—HOUSING—BA 8/1—Base Procurement Office, Bldg. S 3905, Perrin Air Force Base, 300 Wherry Housing units rehab. imprvts., remodeling Perrin Air Force Base, Inv. 41-610-60-51, over $500,000. Plans deposit $35. CD 8/21/56.

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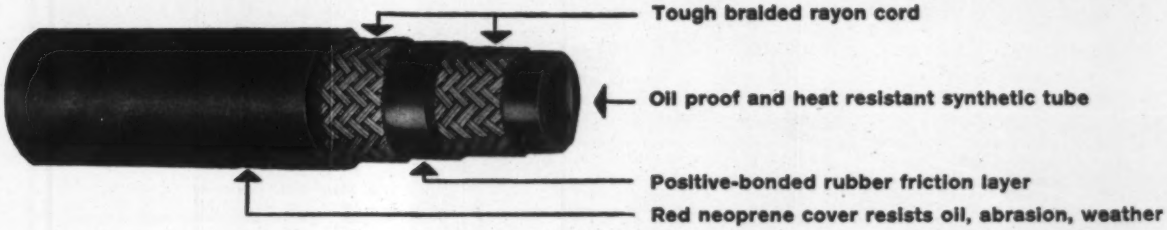
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Red neoprene cover resists oil, abrasion, weather

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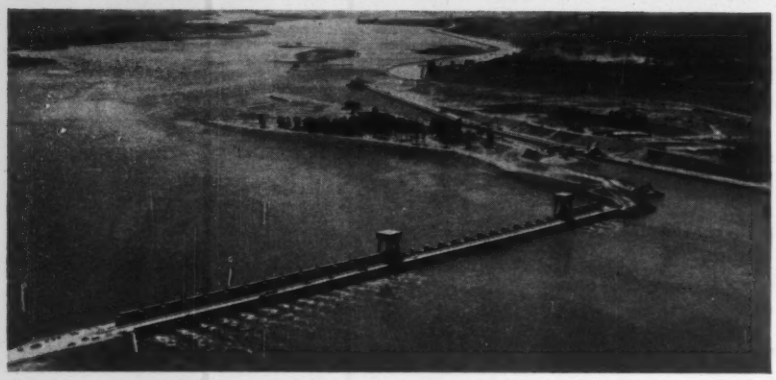

Thousands of feet of drilling and sampling were performed for the initial planning of the Iroquois Dam (St. Lawrence Seaway). The accurate soil samples and high quality rock cores recovered contributed materially to the design of a suitable and firm foundation.

In the second phase of our work on the Iroquois Dam we drilled the necessary grout-holes and performed the pressure grouting. Completely sealing off the cavities that our drilling revealed required the injection of over 10,000 cu. ft. of cement grout.

Sprague & Henwood's unbeatable combination of experienced drilling and grouting personnel, modern equipment and expert supervision is your assurance of the satisfactory completion of your work.

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New York — Philadelphia — Atlanta — Pittsburgh — Grand Junction, Colo. — Buchans, Nfld.

▲ **Tex., Garland**—BA 8/2—City, City Hall, Duck Creek Sewage Disposal plant, $2,100,000; outfall sewer lines, $700,000. Homer A. Hunter & Assocs., 3708 Abrams Rd., Dallas, engrs. CD 12/14.

† **Missouri**—BA 8/4—U. S. Eng., Clock Tower Bldg., Rock Island, Ill., Fabius River Drainage Dist. flood control proj. Stage III, Mississippi River, Marion Co., along right bank of Mississippi River, CIVENG-11-117-61-1. $300,000. CD 5/25.

Mo., St. Louis—BA 8/9—Bd. P. Service, 304 City Hall, Zone 3, resurf. Gravois Ave., 12th St. to Grand Blvd., $104,000; rein.-con. paving Jefferson and Parnell Aves. from Cass to Natural Bridge Ave., $487,000. CD 6/7/55.

Okla., Altus—SUBSTATIONS, etc.—BA 8/15—City, City Hall, two electric substations, transformer equipment, $100,000. John Riley, Altus, engr.

BUILDINGS—BA

Colo., Pueblo—SCHOOL—BA 7/26—Sacred Heart Parish, 1025 Grand Ave., 2 story, 26,000 sq. ft. part bsmnt. school, 10 and Grand Ave., $400,000. Langhart & McGuire, 2559 17 St., Denver, archts.

▲ **Colo., Gunnison** — DORMITORIES — BA 8/2 — State Planning Div., State Capitol Bldg., Denver, four 2 and 3 story, 97,457 sq. ft. women's dormitories, $1,600,000. Berne, Muchow, Baume & Polivnick, 1225 Bannock, Denver, archts. CD 9/1/59.

† **Minn., Worthington**—MAINTENANCE SHOP—BA About 8/2—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul 1, Minn., one bay maintenance shop, U. S. Army Reserve. ENG-21-018-61-2. $25,000. Plans deposit $1.

▲ **Tex., Birdville**—HIGH SCHOOL—BA 8/4—Birdville Ind. School Dist., 1 story, 105,000 sq. ft. masonry, concrete, steel high school, $1,250,000. Plans deposit $50. A. George King & Assocs., 815 Penn St., Fort Worth, archts. CD 2/29.

HEAVY CONSTRUCTION—LB & CA

▲† **ASEA Electric, Inc.**, 500 5th Ave., New York, Zone 36, N. Y., LB **$1,188,379**, (11 bidders), main power transformers Oahe Reservoir Project, CIVENG-25-066-60-127, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Zone 2, Neb. Bids July 28. CD 6/29.

A & D Constr. Co., 2918 E. 15th St., Tulsa, Okla., LB **$641,947**, sanitary sewer lines, Sec. 2, Turkey Creek Relief Line; Sec. 3, Relief lines and appurtenances; Sec. 4, public mains and submains, JOPLIN, MO. City of Joplin, City Hall, Joplin, Mo. Allgeier, Martin & Assoc., 1204 Main St., Joplin, Mo., consult. engrs. Bids June 21. CD 6/8.

Danco Constr. Co., 1300 E. 13 St., North Little Rock, Ark., CA **$775,000**, 41 mi. underground cable from Newport to Searcy, 4 amplifier stations, White and Jackson Counties, ARKANSAS. Southwestern Bell Telephone Co., 900 W. Capitol Ave., Little Rock, Ark.

▲ **COLORADO**—State Hy. Dpt., 4201 E. Arkansas St., Denver,

Z. H. Lowdermilk Constr. Co., 1950 West Dartmouth, Denver, Colo., CA **$1,297,008** grading, structures and plant mixed asph. surf. 4.527 mi. Rabbit Ears Pass near Steamboat Springs, Colorado Proj. No. F 005-2 (18) Bids July 1. Awarded July 5. CD 7/6 under LB.

COLORADO—State Hy. Dpt., 4201 East Arkansas, Denver,

Colo.—**Dominic Leone Constr. Co.**, Trinidad, Colo., CA **$356,671** (6 bidders) plant mixed asph. surf. St. Highway No. 2, N. C. 37-0014-10 plant mixed asph. surf. State Hy. 51 and 14. No. C 39-0051-08 plant mixed asph. surf. St. Highway 51. Combined Colo. Projects 33.692 mi. Iliff, Holyoke, Sedgwick and Logan, Phillips and Sedgwick Counties, Bids July 6. Awarded, CD 6/28.

BUILDINGS—LB & CA

▲ **Sheehy Constr. Co.**, 1255 Larpenteur Ave. W., St. Paul, Minn., LB **$2,959,300** (7 bidders) YOUTH CENTER incl. Administration Bldg., Service Bldg., nine Cottages, etc. CIRCLE PINES, MINN. State Dpt. Admin., 19 State Capitol, St. Paul, Minn. Bids July 8. CD 8/3/59.

▲ **Sharp Bros. Contracting Co.**, 1014 E. 19th St., Kansas City, Mo., CA Est. **$3,000,000**, 13 story, 160 unit, concrete block, brick, steel, L-shaped APARTMENT, incl. 4 story parking, KANSAS CITY, MO. Parkway Towers, Inc., c/o Herbert Duncan & Assocs., archts., 4049 Penn St., Kansas City, Mo. Awarded June 13. (**Correction**—contractor.) CD 3/1, under CA

M.S.T. Investment Co., Inc., 103 S. Spring St., Independence, Mo., Owner Builds, **$780,000**, three, 2 story, concrete block and brick APARTMENT BLDGS., with 3 swimming pools, 6000-6200 Martway Rd., Broodview Gardens, MISSION, KAN. James L. O'Bryan, 7134 W. 80 St., Overland Park, Kan., and Donald L. Harter, Johnson & Nall, Mission, Kan., assoc. archts. Joseph W. Gunther, 8209 Ensley Lane, Kansas City 15, Mo., engr.

▲ **Linbeck Constr. Corp.**, 2720 Saint St., Houston, Tex., CA **$2,500,000**, 6 story OFFICE, HOUSTON, TEX. Columbia Gulf Transmission Co., Brazos St. and Dallas Ave., Houston, Tex. Bids June 15. CD 6/2.

▲ **Allen Field and Jack Gross**, Prudential Bldg., Houston, Tex., CA **$1,287,994**, 98 DWELLINGS, PASADENA, TEX. Irving Jacobson & Assocs., 2427 North Blvd., Houston, Tex. CD 6/16.

▲ **James G. Ryan**, 6280 Chatfield Ave., Littleton, Colo., owner builds, **$3,500,000** 200 unit MOTEL, swimming pool, recreation facilities, U. S. Highway 6 and 40. DENVER, COLO. Ralph D. Peterson, 1750 Humboldt St., Denver, Colo., archt.

Beckler River Bridge
Snoqualmie National
Forest

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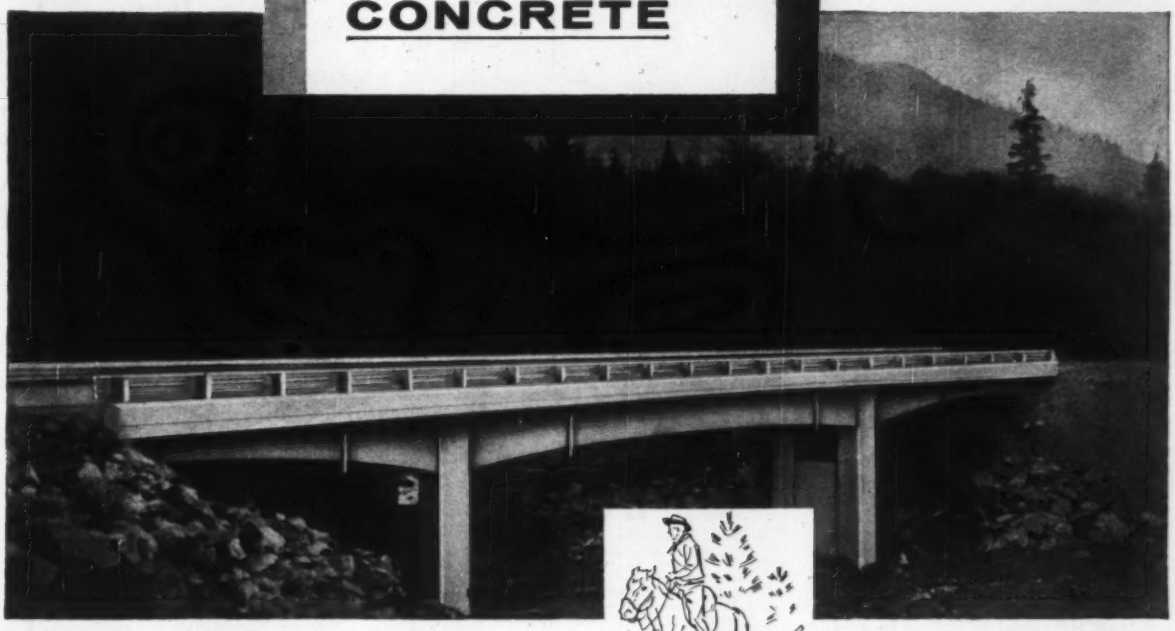

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Designers: U. S. Department of Commerce, Bureau of Public Roads
for U. S. Forest Service
Contractor: David Nygren, Seattle, Washington

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City..... Zone.... State.....

FAR WEST

HEAVY CONSTRUCTION—BA

† **California** — RESIDENCES, etc. — BA 8/4 — National Park Services, Dpt. Interior, 1000 Geary St., San Francisco, residences, ranger station and comfort stations, Lassen Volcanic National Park, IFB LV-W 286. CD 9/21/59.

† **California**—BA 8/9—U. S. Eng., 1209 8th St., Sacramento, relocation of spillway structure, Sacramento River at barge canal, 2 mi. from Sacramento, Yolo Co. Plans deposit $1. CD 10/1/59.

† **California**—BA 8/11—U. S. Eng., 1209 8 St., Sacramento, Elder Creek channel imprvt. and levee constr., Sacramento River overflow area to 1.2 mi. upstream from US Hy. 99W near Gerber, Tehama Co., Spec. 2653, ENG-04-167-61-1. $600,000. Plans deposit $1. CD 10/1/59.

† **Calif., Point Arena Air Force Station**—BA 8/11—U. S. Eng., San Francisco Dist., 180 New Montgomery St., San Francisco, two new prefab. steel pump houses, ENG-04-203-61-3B.

▲ **Washington**—BA 8/19—U. S. Eng., City-County Airport, Walla Walla, excavating navigation channel, Part 1, Snake River, Ice Harbor Lock and Dam, CIVENG 45-164-61-3, $3,500,000. Plans deposit $1.10. CD 9/29.

HEAVY CONSTRUCTION—LB & CA

▲† **ALASKA**—Bureau P. Rds., Juneau, **S. S. Mullen, Inc.**, Box 3886, Terminal Annex, Seattle, Wash., CA **$1,038,242**, grading 3.11 mi., two bridges, Clover Passage-Lunch Creek section, Tongass Hy. Proj. FH-1-J2, K, near Ketchikan. Bids May 24. CD 7/5, under LB.

▲† **Peter Kiewit Sons Co.**, 1300 Aloha St., Seattle, Wash., CA **$860,414**, three rearward communication facilities and installation of communications line, Black Rapids, McCallum and Donnelly Dome. Inv. 60-62, ALASKA. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids June 23. Grand total $1,668,481. CD 7/5 under LB,

▲ **Cheney Constr. Co.** and **National Mechanical Contractors, Inc.**, Central Bldg., Seattle, Wash., CA **$1,500,000**, natural gas distribution sys., Anchorage Metropolitan Area, ANCHORAGE, ALASKA. Anchorage National Gas Corp., 3000 Spenard Rd., Spenard, Alaska. Bids June 22. CD 10/16/59.

▲† **Baugh Constr. Co.**, 922 Poplar Pl., Seattle 44, Wash., CA **$1,468,490**, air route traffic control center, IFG 4-60-1060, SEATTLE, WASH. Federal Aviation Agency, 3651 W. Manchester Ave., Los Angeles, Calif. Bids about June 15. CD 4/12.

† **U. S. Eng.**, 1209 8th St., Sacramento, Calif., rejected bids June 23, dredging Sacramento River, Y St. Bend to Bryte Bend and mouth, American River, Sacramento Co., Spec. 2682, ENG-04-167-60-56, CALIFORNIA. LB $273,890. CD 6/30, under LB.

† **Eugene Luhr & Co.**, P.O. Box 48, Columbia, Ill., LB **$916,845**, est. $1,206,589, (8 bidders), Middle Creek and Drainage Slough Levee, Clear Lake to Bloody Island Pump and Upstream Proj., Spec. 2666, ENG-04-167-60-43, CALIFORNIA. U. S. Eng., 1209 8 St., Sacramento, Calif. Bids July 7. CD 6/2.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, bids opened 7/7, **Guy F. Atkinson Co.**, 10 West Orange Ave., South San Francisco, Calif., LB **$16,237,675** (4 bidders) 7.4 mi. 8 lane freeway San Diego Freeway between 0.3 mi. south, Casinao Rd. and 0.3 mi. north, Valley Vista Blvd., Los Angeles Co. CD 6/17.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, bids opened 7/6, **Frederickson & Watson Constr. Co.** and **Lew Jones Constr. Co.**, 873 81 Ave., Oakland, Calif., LB **$4,893,755** (10 bidders) grading, erecting 15 traffic sep. bridges and interchange structures, future Rte. US Hy. 99 freeway through Merced, Merced Co. CD 6/2.

▲ **Frazier-Davis Constr. Co.**, 1319 Macklind Ave., St. Louis, Mo., CA **$2,069,090**, 2,750 ft. long, 24 ft. high, 18 ft wide Tunnel No. 1, relocation Western Pacific RR around future Oroville Reservoir, Feather River Project, Butte Co., CALIFORNIA. State Dpt. Water Resources, 1120 N St., Sacramento, Calif. Bids June 22. Awarded July 1. CD 6/24 under LB.

BUILDINGS—LB & CA

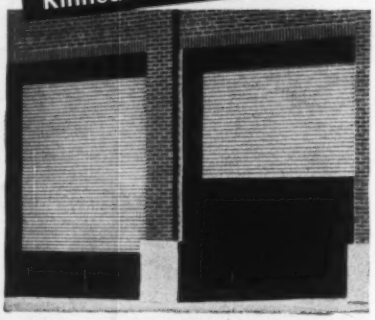
▲ **Skyline Construction Co.**, 1605 Chicago St., Salt Lake City, Utah, CA **$1,056,459**, junior high SCHOOL, KAYSVILLE, UTAH. Davis Co. School Dist., Co. Courthouse, Farmington, Utah. Bids June 9. CD 6/22, under LB.

▲ **Paulsen Constr. Co.**, 1936 Westwood Way, Salt Lake City 17, Utah, CA **$1,217,386**, 5 story TEACHING THEATER, classrooms, laboratories, University of Utah, SALT LAKE CITY, UTAH. State Bldg. Bd., State Capitol, Salt Lake City, Utah. Bids June 21. CD 7/1, under LB.

▲ **Newland Constr. Co.**, P.O. Box 958, Everett, Wash., CA **$1,527,000**, 165,780 sq. ft. HIGH SCHOOL, EVERETT, WASH. School Dist. No. 2, Auditorium Bldg., Everett, Wash. Bids June 8. CD 6/20, under LB.

▲ **Corey & Medvin**, 8111 Beverly Blvd., Los Angeles 48, Calif., Owners Build, **$1,034,000**, 5 story 40 unit APARTMENT, 7560 Hollywood Blvd., LOS ANGELES,

Kinnear-Originated
Kinnear-Designed
Kinnear-Built
Kinnear - Registered
Kinnear Hot-Dip Galvanized
Kinnear Paint-Bonded



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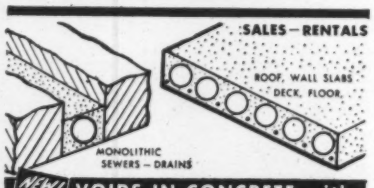

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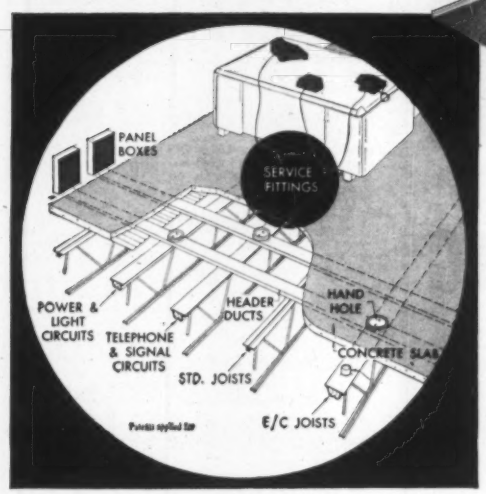

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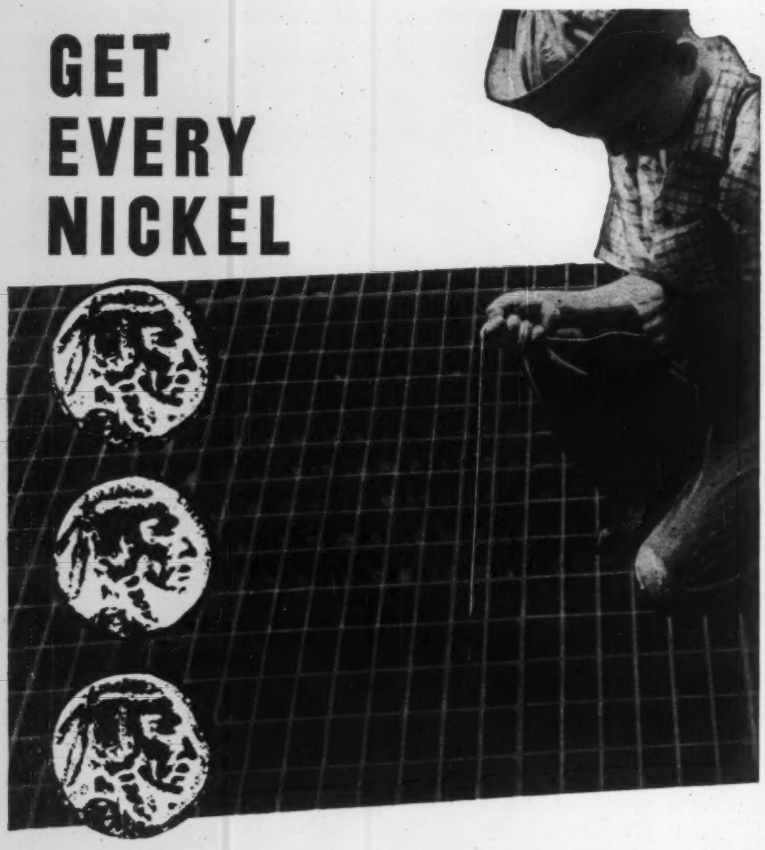

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CALIF. Daniel Dworsky, 469 S. Robertson Blvd., Beverly Hills, Calif., archt. Paul Toien, 8217 Beverly Blvd., Los Angeles, Calif., engr.

▲ **Williams & Burrows, Inc.,** 500 Harbor Blvd., Belmont, Calif., CA **$1,207,470,** Increment IV and V and Food Services Equipment, Santa Clara COUNTY HOSPITAL, Los Gatos Rd., SAN JOSE, CALIF. Bd. Supervs. Santa Clara Co., Courthouse, 1st and Rosa Sts., San Jose, Calif. Bids June 17. CD 6/23, under LB.

▲ **C. L. Peck,** 816 W. 5 St., Los Angeles, Calif., CA **$2,822,500,** 126,866 sq. ft. OFFICE, OBSERVATOR, 4 RESEARCH BLDGS., etc., 6101 Crest Rd. W., ROLLING HILLS, CALIF. Nortronic's, 222 N. Prairie Ave., Hawthorne, Calif. Chas. Luckman, 9220 Sunset Blvd., Los Angeles, Calif., archt.

▲ **Leeward Development Corp.,** 915 South St., Honolulu, Hawaii, CA **$1,000,000,** LEEWARD SHOPPING CENTER, EWA, HAWAII. Blackfield Enterprises, 915 South St., Honolulu, Hawaii. Merrill, Sims & Roehrig, Damon Bldg., Honolulu, Hawaii, archts.

CANADA

BUILDINGS—BA

▲ **Ont., Renfrew**—HOSPITAL—BA 7/29—Victoria Hospital Bd., 499 Raglan Ave. N. (selected list of bidders), hospital extension, $1,330,000. Agnew & Ludlow, 25 Merton St., Toronto, Ont., archts. C. D. Carruthers & Wallace Consultants Ltd., 92 Yorkville Ave., Toronto, Ont., engrs. CD 1/13/58.

HEAVY CONSTRUCTION—LB & CA

ALBERTA—Dpt. P. Wks., Hunter Bldgs., Ottawa, Ont., **Shaw Constr. Co., Ltd.,** Midnapore, Alta., CA **$528,987,** (8 bidders), bit. stab. base course, Mile 1 to Mile 18, Banff-Windermere Hy., double seal course Mile 0 to Mile 5, Emerald Lake Rd., (contract 13-60-B-W) Banff. Bids May 24. CD 6/3, under LB.

▲ **Matthews Concrete Ltd.,** 406 Princess Ave., London, Ont., CA **$825,873,** sewage treatment plant, Greater Sault Ste. Marie integrated sewerage plant, SAULT STE. MARIE, ONT. Ontario Water Resources Comn., East Block, Parliament Bldgs., Toronto, Ont. Bids May 20. Awarded June 27. CD 4/29;
J. R. Brown & Co., Ltd., Sault Ste. Marie, Ont., CA **$268,534,** pumping stations, Pim St. and Clarke St., sewage treatment plant for Greater Sault Ste. Marie integrated sewerage scheme (Sault Ste. Marie, Ont.). Correction CD 5/7.

▲ **Bedford Constr. Co., Ltd.,** 36 Brydon Dr., Rexdale, Ont., LB **$1,027,115,** 760 ft. elevated roadway for Frederick Gardiner Expressway, Contract R 10-60, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids July 5. CD 6/22.

Bedford Constr. Co., Ltd., 243 College St., Toronto, Ont. LB **$89,541,** (5 bidders), sewer pumping station, Livingstone Rd., TORONTO, ONT. Twp. of Scarborough, 2001 Eglinton Ave. E., Toronto, Ont.

M. G. Reed & Assocs., Ltd., 5302 Dundas St. W., Toronto, Ont., LB **$210,122,** lighting Don Valley Parkway, Contract R 24 60, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids July 5. CD 6/24.

Spino Constr. Ltd., 200 Sauve Ave. W., Montreal, Que., CA **$871,580,** Section 3, Victoria Collector Sewer, LACHINE, QUE. City, City Hall, Lachine, Que. Bids June 27. Awarded July 4. CD 7/7, under LB.

BUILDINGS—LB & CA

▲ **Wallace & Akins Ltd.,** 245 Somerset Bldg., Winnipeg, Man., CA Est. **$1,000,000,** 3 story, frame, masonry Catholic Institute, MIDDLECHURCH, MAN. Benedictine Mother House, c/o Arthur V. Mauro, Bank of Nova Scotia Bldg., Winnipeg, Man. Bids May 26. CD 5/11.

▲ **Annapolis Valley Constr. Co., Ltd.,** Bedford, N. S., CA Total Est. **$1,275,000,** foundation, steel, excavation for women's residence and gymnasium, TEACHERS COLLEGE, Arthur St., TRURO, N. S. Dpt. P. Wks., Parliament Bldgs., Halifax, N. S. Downey, Baker & Ahearn, 111 Inglis St., Halifax, N. S., archts. Bids May 20. Awarded June 24. CD 5/12.

▲ **J. L. E. Price & Co., Ltd.,** 4664 St. Catherine St. W., Montreal, Que., CA 13 story, 88 x 96 ft. BANK, southeast corner Richmond and Bay Sts., TORONTO, ONT. Imperial Bank of Canada, Bay and King Sts., Toronto, Ont. Bids June 28, awarded July 5. CD 6/17.

▲ **Yonbel Properties Ltd.,** 234 Eglinton Ave. E., Toronto, Ont., Owner Builds, **$2,000,000,** 7 story air conditioned OFFICE, Yonge and Belmont Sts., TORONTO, ONT. Visvaldis, Upenieks, 234 Eglinton Ave. E., Toronto, Ont., archt.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **Lummus Co. Ltd., London, England,** (sub Lummus Co., 384 Madison Ave., New York, N. Y., U.S.A.), CA est. **$30,000,000,** design and construct SYNTHETIC RUBBER PLANT near Breilly, Utter Pradesh, INDIA. Synthetics & Chemicals Ltd. (Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, O., U.S.A. and Kilechand Devchand & Co., Private Ltd., Bombay, India). CD 10/6/59.

▲† **Oman, Farnsworth & Wright,** 625 Madison Ave., New York, N. Y., CA **$1,640,487,** housing officers quarters and mess, swimming pool, school and commissary, PESHAWAR, PAKISTAN. U. S. Eng., Mediterranean Div., Leghorn, Italy.

PROPOSED PROJECTS

WATER SUPPLY

▲ **O., Oregon**—City, City Hall, bond election Nov. 8 for $3,500,000, water system 4 mgd cap., intake from Reno Beach 5 miles to Lake Erie. $5,000,000. Finkbeiner, Pettis and Strout, 2130 Madison, Toledo, consult. engrs. CD 12/11/59.

Utah, Tooele—City, City Hall, 2 m.g. reservoir and mains, Southwestern Section. $250,000. Nielsen, Reeve & Maxwell, 275 E. 4425 So. Washington Terrace, Utah, engrs. CD 6/16.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St., E. Toronto, three sections, water-main project from John St. pumping station to water-main at Huron & Bernard Sts. About 15,000 sq. ft. in tunnel and open cut. $3,550,000. James F. McLaren & Assoc., 321 Bloor St., E. Toronto. Consult. engrs.

SEWERS, WASTE DISPOSAL

Ala., Birmingham—Dept. of Public Improvements, City Hall sanitary sewer improvements in Ensley area, $567,000; sanitary improvements, North Birmingham area, $100,000. Hendon and Assoc., 10 Office Park Circle, Birmingham, Zone 9, engrs. Bids in 30 days. CD 5/11/60.

Calif., Montara—Montara Sanitary Dist. bond election Oct. 4, $400,000, sewerage sys., 2 pumping stations, interceptor sewers, primary treatment plant, $600,000, Montara and Moss Beach. McCandless & Fraham, 2360 Bay Road, Redwood City, Calif., consult. engrs. CD 7/6.

▲ **Me., Rockland**—City, City Hall, sewage treatment plant, out-fall and interceptor sewers, $1,365,000, Fay, Spafford & Thorndike, 11 Beacon St., Boston, Mass., engrs. CD 6/27.

Minn., Shakopee—City, voted bonds, $516,000, June 23, disposal plant and trunk line interceptor sewers. $766,000. 1960 constr.

N. C., Garner—Town, Town Hall, sanitary sewer lines. $600,000. L. E. Wooten and Co., 306 S. Dawson St., Raleigh, consult. engrs. CD 6/27.

▲ **O., University Heights**—City, City Hall, bond election Nov. 8, $3,500,000, sewers in 4 of City's 6 sewer districts. Frank L. Woodruff, 3482 Lee Rd., Cleveland, Zone 20, O., consult. engr. CD 6/3.

▲ **Wyo., Cheyenne**—South Cheyenne Sewer and Water Dist., Cheyenne, election July 12, $670,000 bonds, sewer lines extensions and sewage plant, $775,000. T. H. Baldwin, 3112 Cribbon Ave., Cheyenne, consult. engr. CD 2/5/60.

BRIDGES

▲ **Ill., Chicago**—Dept. of Purchases, Chicago, City Hall 2, paving 1900 sq. ft. overpass & interchange, Oak St. & Michigan Ave. $2,400,000. Bids summer 1960. Dick Van Gorp, ch. engr., 320 N. Clark St., Chicago 10. CD 6/10/57.

STREETS AND ROADS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Boston-Charlestown-Cambridge-Inner Belt Hy. $31,000,000-$41,000,000. Hayden, Harding & Buchanan, 1340 Soldiers Field Rd., Brighton, Mass., engrs. CD 8/13/56.

▲ **N. Y., Mineola**—Dpt. P. Wks. Nassau Co., Old Court House Rd., wid'n. 1.8 mi. Nassau County Rte. 4 between Hempstead Turnpike and Old Country Rd. $750,000; imprv. Old Country Rd. between Washington St. and Clinton St. about 1 mi., $100,000; Rockaway Rd. Rte. 8, wid'n., reconstr. 1 mi. between Stewart Ave. and Old Country Rd. $375,000; imprv. Broadway and Rockaway Aves., Hewlett. $300,000.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Com., Box 531, Harrisburg,

Somerset Co.—additional parallel tube for 2 lanes of traffic Laurel Hill Tunnel, $12,000,000. Michael Baker, Inc., Baker Bldg., Rochester, consult. engr. R. A. Farley, ch. engr. c/o owner.

EARTHWORK, WATERWAYS

Va., Norfolk—BULKHEADS, DREDGING, ETC.—City, City Hall, bulkhead, waterfront reclamation, dredging, piling, $250,000 to $500,000, Hayes, Seay, Mattern & Mattern, 1615 Franklin Rd. SW, Roanoke, consult. engrs. CD 6/28.

AIRPORTS

▲† **Idaho Mountain Home**—COMMUNICATIONS SUPPLY, ETC., Corps of Engineers, Bldg. 602 City-County Airport, Walla Walla, Wash. Communications supply facility, liquid facility, Mountain Home Air Force Base. $1,500,000. Funds released. CD 9/25/59.

▲ **Ill., Chicago**—AIRPORT—Dpt. Purchases, City Hall, Zone 2, Chicago-O'Hare International Airport, site preparation runway 27L-9R, grading, drainage, electric ducts, $2,655,000; 4,200 ft. taxiway to 14L-32R, $668,000; 864.52 ft. paving Northeast extension Runway 22, $230,000; taxiway, parallel to runway 4-22, $276,000; paving, extending runway 1,000 ft., taxiway, Northwest extension, $478,000; widen taxiway from 50 to 75 ft., 3,500 ft. long, connecting runway 4-22, 18-36 and 14L-42R, $236,000, Park Ridge. Naess & Murphy, 224 S. Michigan Ave., Chicago, Zone 4, consult. engrs. Bids in 1961. CD 12/3/57.

† **Mont., Great Falls**—RADAR TOWER—Corps. of Engineers, Walla Walla, Dist. Bldg., 602 City-County Airport, Walla Walla, Washington. AC & W radar tower, Malmstrom Air Force Base. $980,000. Funds released. CD 7/3/59.

† **N. H., New Boston** — SATELLITE-TRACKING — Corps of Engineers, 424 Trapelo Rd., Waltham, Mass., satellite tracking and telemetry station, addn. New Boston Air Force Base. $500,000. Funds released.

UNCLASSIFIED

North Dakota—ELECTRIC SYSTEM INTERCONNECTION—Northern States Power Co., 15 S. 5th St., Minneapolis, Minn., transmission line interconnection between electric sys. of N. S. P. and Bur. of Reclamation, $880,000.

O., Cleveland—PARKING LOTS—City, City Hall, Zone 14, bond election Nov. 8, parking lots along rapid transit extension to Hopkins Airport. $800,000. CD 2/7/57.

▲ **Oklahoma**—ELECTRIC LINES—East Central Electric Cooperative, Okmulgee, 200 mi. rural electric lines, Okmulgee, Okmulgee Co. $1,032,000. C. H. Guernesey and Co., 2700 North Oklahoma, Oklahoma City, engrs. CD 11/22/50.

PUBLIC BUILDINGS

▲ **Calif., Arlington** — SCHOOL — Alvord School Dist., 10365 Keller St., plans by H. O. Ruhnau, Mission Inn Rotunda, Riverside, Calif., junior high school addn. $1,000,000.

▲ **Colo., Littleton**—SCHOOLS—School Dist. No. 6, 176 S. Grant Ave., $6,520,000 bond election Dec. 6, schools. CD 12/3/57.

Del., Wilmington—ADMINISTRATION—Bd. Educ., 511 W. 8 St., administration 14th and Washington Sts. $600,000.

▲ **Fla. Ft. Lauderdale**—COURTHOUSE—Brd. of Commrs. Broward Courthouse, plans by Crawford and Hartley, 611 S. Federal Hgwy., courthouse addn. $1,500,000. Sloan Engrg. and Assocs., 666 NE 125 St. Miami, structural engrs. R. L. Duffer and Assocs., 3356 Virginia St. Miami, mechanical engrs.

Fla. Miami—GARAGE—City Off-Street Parking Authority, City Hall, 3342 Pan American Dr. plans by Rader and Assocs., 100 S. Biscayne Blvd. Miami, 11 story garage, Biscayne Blvd., between 1st. and 2nd. Sts. $900,000 Bids about August. CD 3/4/60.

▲ **Hawaii, Honolulu**—GEOPHYSICAL INSTITUTE BLDG.—State, State Office, geophysical institute bldg., University of Hawaii. $3,000,000.

▲ **Minn., New Ulm**—SCHOOL—City, Bd. of Educ., Ind. School Dist. No. 83, voted $1,100,000 bonds June 21, elementary school. Harrstick, Lundgren & Assocs., 212 First National Bank Bldg., St. Paul, archts. CD 6/17.

▲ **Nev., Reno**—CIVIC AUDITORIUM—Washoe Co., civic auditorium, $2,500,000.

▲ **N. J., Emerson**—SCHOOL—Bd. Education, Boro Emerson, Linwood Ave., plans by Knappe & Johnson, Underhill Rd., Scarsdale, N. Y., junior-senior high school, Main St. $2,000,000-$3,000,000.

▲ **N. J., Glassboro**—HIGH SCHOOL—Bd. Educ., Borough of Glassboro, plans by Howell Lewis Shay & Assocs., Packard Bldg., Phila., Pa., high school, $2,100,000.

▲ **N. J., Trenton**—COLLEGE—Trenton Junior College, 101 W. State St., Trenton, college. $4,000,000.

▲ **N. J., Woodbridge**—HOUSING UNIT—Housing Authority of New Brunswick Lane, Woodbridge, 100 unit housing. $1,000,000.

▲ **N. Y., Amityville**—SCHOOL—Bd. Educ., voted $3,500,000 bonds June 18, junior high school. Knappe & Johnson, 2110 Northern Blvd., Manhasset, N. Y., archts. CD 5/4.

▲ **N. Y., Deer Park**—SCHOOLS—Deer Park Union Free School Dist. No. 7, 1861 Deer Park Ave., plans by Frederic P. Wiedersum Assocs., 65 Roosevelt Ave., Valley Stream, N. Y., Washington elementary school, $1,439,850; elementary school addns. $3,045,300.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 45-12 Crescent St., Long Island City, plans by Ballard Todd & Snibbe, 123 E. 77th St., New York 21, N. Y., Proj. E-537-P. S. 74, 3 story elementary school (2 bldgs. connected by 2 story corridor) 115 St. and 3rd Ave., Manhattan Boro. $2,500,000. Harold Hecht, 114 Liberty St., New York 6, N. Y., mechanical engr. Fraioli-Blum-Yesselman, 250 E. 43rd St., New York 17, N. Y., structural engrs. Bids about Oct. 15. CD 5/19.

▲ **O., Hudson**—SCHOOL—Bd. Educ., bond election Nov. 8, Hudson High School and Evamere grade school addn. $1,100,000.

▲ **Ore., Eugene**—HIGH SCHOOL—Lane County School Dist. No. 4, 275 7th Ave., plans by Lutes & Amundsen, 628 A St., Springfield, high school, $1,500,000. CD 3/9.

▲ **Pa., Media** — COURTHOUSE ALTERATIONS—Delaware Co. Commrs., Courthouse, plans by George M. Ewing Co., Western Savings Fund Bldg., Philadelphia, alterations, air conditioning, Co. Courthouse, $1,180,000.

▲ **Pa., Oil City**—SCHOOL—Oil City Area Joint School Dist high school, Proj. 743, $2,600,000. CD 10/1/53.

▲ **Tex., El Paso**—HOUSING—El Paso Housing Auth., City Hall. 330 low rent housing units for aged, $2,275,000. CD 5/16/56.

▲ **Va., Norfolk**—STADIUM—City of Norfolk, Norfolk plans by Woodward & Smith, Flat Iron Bldg., Norfolk, stadium. $3,000,000.

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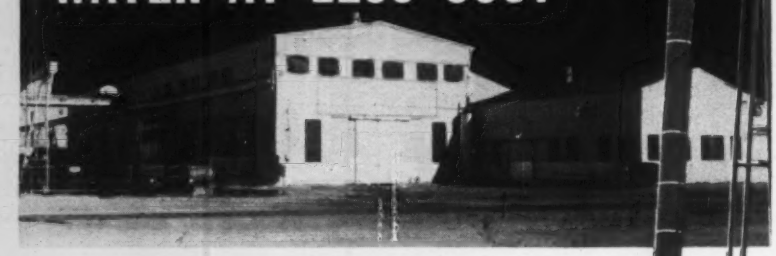

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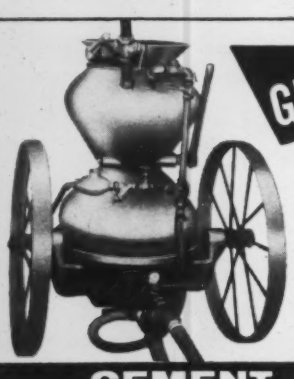

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COMMERCIAL BUILDINGS

▲ **Calif., Daly City**—APARTMENTS—Callan Realty Co., 2790 Junipero Serra Blvd., plans by Mogens Mogensen, 1424 Chapin Ave., Burlingame, Calif., seven 3 story rein.-con. wood frame 328 apartments incl. under parking, St. Francis Heights Subdivision. $4,000,000. Bids in August. CD 2/16.

▲ **Calif., Goletta**—DWELLINGS—H. C. Elliott, 1575 E. 3rd St., Pomona, Calif., plans by Development Coordinators, 119 S. Gilbert Ave., Fullerton, Calif., 63 frame, stucco dwellings, Kellogg Ave., Marbury Dr., Cambridge Dr. $1,013,500.

▲ **Calif., Pacifica**—APARTMENT—Oddstad Homes, Inc., 1718 Broadway, Redwood City, 2 story, 61-4 unit apartments, Edgemar Area. $3,000,000. Frahm, Maykel & Edler Assoc., 2260 Bay Rd., Redwood City, Calif., consult. engrs.

▲ **Calif., Palo Alto**—DEPARTMENT STORE, etc.—R. H. Macy, Stockton & O'Farrell Sts., San Francisco, Calif., plans by John S. Bolles, 14 Gold St., San Francisco, Calif., 2 story, 150,000 sq. ft. department store, Stanford Shopping Center. $2,500,000. CD 4/14.

▲ **Calif., San Mateo**—SHOPPING CENTER, etc.—Enar Eric Holm, 340 Lorton Ave., Burlingham, shopping center, department store. $3,000,000-$4,000,000.

Colo., Denver—AUDITORIUM, LIBRARY—Loretto Heights College, 3001 South Federal Blvd., plans by Monroe, Irvin & Dunham, 1250 Wadsworth St., 1 and 2 stories, auditorium and library, $965,000.

▲ **Conn., New Haven**—LIBRARY—Yale University, 105 Wall St., plans by Owings, Skidmore and Merrill, 425 Park Ave., New York, N. Y. Sterling library addn. Wall St., $5,500,000. CD 6/26/56.

▲ **Fla., Key West**—SHOPPING CENTER—A. E. Golan, 3750 Sunrise Lane, Key West, plans by Friedman and Jobusch, 2233 E. Broadway, Tucson, Ariz., 191,000 sq. ft. shopping center. $3,000,000.

▲ **Fla., Miami**—APARTMENT—Owner c/o Irani & Assoc., archts. Ainsley Bldg., 14 NE 1 Ave., Miami, 201 apartment units S. Bayshore Dr. and S.E. 15 St., $3,500,000.

▲ **Hawaii, Honolulu**—COOPERATIVE OFFICE—1415 Corporation, c/o Takashi Anbe, archt., 1631 Kapiolani Bldg., Honolulu, Hawaii, 12 story cooperative office. $3,000,000. Jack Taniyama, 710 S. King St., Honolulu, Hawaii, engr.

▲ **Ill., Evanston**—RESEARCH CENTER—Northwestern University, 619 Clark St., research center, two, 4 story wing addns. to Technological Institute, $7,000,000. Bids about end of 1960.

▲ **Iowa, Decorah**—STUDENT CENTER—Luther College, plans by Chas. Altfillisch & Assoc., 126½ W. Water St., tri-level, 2-wing student center, Proj. Iowa 13-CH-28(S), $1,000,000. CD 12/7.

▲ **Mass., Cambridge**—DORMITORY—Massachusets Institute Technology, 77 Massachusetts Ave., plans by Anderson, Beckwith & Haible, 11 Beacon St., Boston, Mass., women's dormitory, Campus. $1,500,000. Constr. 1960. CD 4/20.

▲ **Mass., Cambridge**—EDUCATIONAL CENTER—Massachusetts Institute Technology, 77 Massachusetts Ave., educational center, housing, research, etc. $2,000,000. Constr. 1961.

Mich., Grosse Point—CHURCH ADDN.—Grosse Point Memorial Presbyterian Church, 16 Lake Shore Dr., plans by Herman & Simons Co., 632 Lafayette Bldg., Detroit 26, Mich., steel, stone, brick church addn., 16 Lake Shore Dr. $763,000. Constr. Sept. 1960.

▲ **N. J., Brooklawn**—SHOPPING CENTER—Penfil Realty Co., Lewis Tower Bldg., Philadelphia, Zone 2, Pa. Plans by Evantash and Friedman, 225 So. 15th St., Philadelphia, Pa., Brooklawn Shopping Center off Hayden Rd. $1,500,000.

▲ **N. J., Teaneck**—LIBRARY—Fairleigh Dickinson University, 223 Montrose Ave., Rutherford. Plans by Fellheimer & Wagner, 155 E. 42 St., New York, N. Y., library, 1000 River Rd., $1,000,000. Constr. in fall.

▲ **N. Y., New Hyde Park**—HOSPITAL ADDN.—Long Island Jewish Hospital, 270-05 76th Ave. Plans by Louis Allen Abramson, 25 W. 45th St., New York 19, N. Y., 5 story hospital addn. $6,000,000. CD 2/11.

▲ **N. Y., New York**—CLASSROOM & ADMINISTRATION—Yeshiva University, Amsterdam Ave. and 186 St., New York, 33, plans by H. I. Feldman, 415 Lexington Ave., New York 17, N. Y., 5 story classroom and administration bldg. SW corner Amersterdam Ave. and 185 St. $3,000,000.

▲ **N. Y., Salina**—MOTOR COURT HOTEL—Potter Real Estate Co., Onondaga Hotel, Syracuse, N. Y., plans by Sargent, Webster, Crenshaw & Foley, 2112 Erie Blvd., Syracuse, N. Y., Randolph House motor court hotel. $5,000,000.

▲ **N. Y., Syracuse**—APARTMENT—Gregory Banos, 303 Sycamore Terrace, 4 story, 160 unit concrete block, precast concrete, etc. Gregory Towers apartment. $3,500,000.

▲ **N. C., Charlotte**—OFFICE—Mutual Savings & Loan Assoc., 117-19 E. Third St., Charlotte, plans by Marsh and Hawkins, 221 St. Church St., office, $1,000,000. Mechanical Engineers, Inc., 109 W. Third St., consult. engrs.

▲ **O., Oregon**—HIGH SCHOOL—Diocese of Toledo, School Office, 436 W. Delaware St., Toledo, plans by Bellman, Gillett & Richards, 1600 Madison St., Toledo, 2 story Samuel Cardinal Stritch high school, Pickle Rd. $1,000,000. CD 1/30/59.

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▲ **Tenn., Jackson**—LIBRARY—Union University, East College St., Jackson, plans by W. C. Harris Jr., National Bank, Commercial Bldg., Jackson, library $500,000; men's residence hall-B $410,000; chapel $400,000; women's residence hall $410,000; men's residence hall-A $410,000; infirmary $400,000; music facility $400,000. CD 6/28.

▲ **Tenn., Nashville**—DORMITORY—Scarritt College for Christian Workers, 1008 19th Ave. S., Nashville. Plans by Hall, Scalf and Assocs., Nashville Trust Bldg., Nashville, dormitory $500,000; offices $500,000; student union $500,000. CD 6/27.

▲ **Tex., Dallas**—HOSPITAL—Stevens Osteopathic Hospital, 1141 N. Hampton Rd., Dallas, 3 story masonry hospital, addn. $1,250,000.

▲ **Tex., Houston**—OFFICE, etc.—Real Estate Syndicate of Texas, 1006 River Glyn Dr., San Antonio, plans by McCall Fitzpatrick, 4118 Fannin St., Houston, 22 story office, $3,500,000; 80 unit luxury apartment, $425,000; professional office, $400,000; parking garage, $225,000; concrete bomb shelter, $250,000; pavement, $125,000; water system, $68,500; site area earthwork, $80,000, Westmeimer and Post Oak Rds.

▲ **Tex., Houston**—OFFICE—Southwestern Savings Ass'n, 3401 Main St., Houston, 18 story office $4,000,000, 3300 Blk. Main St.

Tex., Houston—MOTEL—Syndicate % Wyatt C. Hedrick, Co., archt., 5201 Fannin St., Houston, 10 story motel, parking. $3,000,000.

▲ **Va., Norfolk**—Ott Investment Corp., 6029 River Rd., Norfolk, apartments, North Shore Dr., $1,800,000.

Va., Ocean View—MOTEL—Dr. Dudley Cooper, Ocean View Improvement Corp., 436 Brush St., Norfolk, 50 unit motel, $500,000.

▲ **Wis., Oshkosh**—YMCA—Young Men's Christian Assn., 233 Church Ave., plans by T. H. Irion-L. H. Reinke, 805 N. Main St., YMCA, $1,000,000. CD 7/1/59.

▲ **Alta., Edmonton**—LIQUOR STORE—Alberta Liquor Control Bd., 10160 103rd St., 4 story liquor store, 106th St., and 102nd Ave., $1,000,000.

▲ **Ont., Toronto**—CHEMISTRY BLDG.—University of Toronto, Simcoe Hall, Toronto. Plans by Allward & Gouinlock, 245 Davenport Rd., Toronto. Chemistry Bldg., St. George St. $5,000,000.

▲ **Ont., Windsor**—HOSPITAL—Grace Hospital, 339 Crawford St., Windsor, plans by Pennington & Baker, Suite 302, Morris Bldg., hospital addn. $3,000,000.

Que., Chicoutimi—ORPHANAGE—Orphelinat de l'Immaculee, Petites Franciscaines de Marie, Jacques Cartier St., E., orphanage extension, $500,000.

INDUSTRIAL BUILDINGS

▲ **Conn., Hartford**—MANUFACTURING PLANT—Royal-McBee Corp., 150 New Park Ave., remodel 575,000 sq. ft. typewriter mfg. plant. $1,000,000.

▲ **Iowa, Red Oak**—HOG PROCESSING PLANT—American Milling Co., c/o Lowell Kinnison, Red Oak, hog processing plant, feed mill, hog buying station, packing plant, $3,000,000.

▲ **Ky., Erlanger**—PLANT—Wadsworth Elec. Mfg. Co., 20 W. 11th St., Covington, Ky., 1 story, 225,000 sq. ft. electric mfg. plant, Donaldson Hy. and Mineola Park. $2,000,000.

▲ **N. J., Point Pleasant**—PLANT—The Borden Co., 350 Madison Ave., New York, N. Y., plans by Cowell & Robinson, 25 West 43 St., New York, N. Y., plant, Gull Island, $1,000,000. CD 5/25.

▲ **N. C., Plymouth**—PLANT—Dixon-Southern Chemicals, Inc., Box 656, Plymouth, and 1260 Broad St., Bloomfield, N. J., cornstarch plant, $8,000,000. Dorr-Oliver, Inc., Havemeyer Lane, Stamford, Conn., preliminary engrs. CD 3/4.

▲ **O., Akron**—WAREHOUSE—A. Polsky and Co., High and State Sts., Akron, 4 story, 522,000 sq. ft. warehouse, with two-level connecting pedestrian bridge. $2,000,000. To start about Oct. 1960.

O. Hillsboro—MANUFACTURING PLANT—Hillsboro Civic Assn., Inc., Hillsboro, 80,000 sq. ft. manufacturing plant and 15,000 sq. ft. storage area. $800,000. Moore Drop Forging Co. of Springfield, Mass., Lessee.

▲ **Tex., Carrollton**—MANUFACTURING PLANT—Allied Battery Co., 2040 Amelia St., Dallas, plans by Collins and Dryden, 2021 Fairmount St., Dallas, manufacturing plant, Belt Line Rd. and Reddick Dr. $1,000,000.

▲ **Tex., Dallas**—FOOD PLANT—H. L. Hunt Products Co., Mercantile Bank Bldg., Dallas, plans by Braden and Jones, 200 W. Colorado St., Dallas, food plant. $1,000,000. CD 6/29.

▲ **Tex., Houston**—PLANT—Sinclair Refining Co., Petroleum Bldg., chemical plant unit, to make orthoxylene from petroleum, $5,500,000; site earthwork, $65,000; water lines, related work, $65,000; area and Auto Center pavement, $110,000. CD 2/15/55.

▲ **Wash., Hoquiam**—PAPER MILL, etc.—Rayonier, Inc., 161 E. 42 St., New York, N. Y., paper mill, chemical recovery sys., 2 warehouses, $2,500,000. Constr. 1960.

▲ **Ont., Port Credit** — PRODUCTION PLANT — Texaco Canada Limited, 1425 Mountain St., Montreal, Quebec, plant for production of benzene and toluene, storage, marine loading, etc. $2,000,000.

▲ **Ont., Toronto**—HOSIERY MILL—Hanes Hosiery Mills, 350 5 Ave., New York, N. Y., U.S.A., hosiery hill, Malton. $1,000,000.

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CALLING FOR BIDS

NEW ENGLAND

Vt., Brandon—BA 8/1—Town, Bd. Selectmen, Town Hall, Contract 1, intercepting sewers and sewage pumping facilities. $100,000. Plans deposit $25. Contract 2, sewerage treatment plant Clay St. $500,000. Plans deposit $25. Joseph A. Kestner, Jr., 189 N. Lake Ave., Troy, N. Y., engr. CD 9/1.

BUILDINGS—BA

Conn., Middletown—SCHOOL—BA 8/3—Town Bd. Educ., Russell St., Woodrow Wilson High School addn. $500,000. Raymond Brown, Jr., 125 Trumbull St., Hartford, archt. Peter J. Dalton, Jr., 1125 New Britain Ave., West Hartford, engr. CD 5/11.

Mass., Clinton—CHURCH, etc.—BA 8/3—Our Lady of Jasna Gora R. C. Church, c/o Diocese of Worcester, 1 Tuckerman St., Worcester, Mass., church and convent. $450,000. Plans deposit $35. Henneberg & Henneberg, 96 Mt. Auburn St., Cambridge, Mass., archts. CD 1/21.

▲ **Conn., Seymour**—SCHOOL—BA 8/4—Town, School Bd. Comn., Second St., high SCHOOL, incl. plumbing, heating, ventilating, electrical and site work, $1,500,000. Plans deposit $100. Schilling & Godbecker, 18 Trumbull St., New Haven, archts. Val Carlson, 433 Howe Ave., Shelton, engr. May 19 bids cancelled. CD 5/18, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 7/12,
Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I., LB **$1,877,738**, est. $2,308,790, hy. and bridge, Rte. 28, F-191(8), Falmouth. CD 6/24.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 7/12,
Peter Salvucci & Sons, Inc., 55 Pond St., Waltham, Mass., LB **$1,065,370**, est. $1,169,751, hy. and bridge, Section Int. 495, FAP I-495-6(23)71, Tewksbury. CD 6/29.

▲ **CONNECTICUT**—State Hy. Comrs., 170 Douglas St., Hartford,
A. J. Orlando Constr. Co., Inc., 151-59 Powells Cove Blvd., Whitestone, N. Y., CA **$3,812,779**, bit. conc. pavement 17,400 lin. ft. relocating Rte. 72, 7 bridges, 3 reinf. conc. box culverts from Intersection Corbin and Farmington Aves. to Rte. 15 FAI Proj. FV 60/(4), Proj. 07-85 Berlin and New Britain. Bids June 20. CD 6/22, under LB.

BUILDINGS—LB & CA

▲† **Davision Constr. Co., Inc.**, 1306A Elm St., Manchester, N. H., LB **$2,798,000**, Base Bid, 177 units Capehart HOUSING, Topsham Air Force Station, IFB 17-612-60-2, TOPSHAM, ME. Base Procurement Office, Topsham Air Force Station, Brunswick, Me. Bids July 12. CD 6/15.

▲ **Park Constr., Inc.**, 40 Court St., Boston, Mass., LB **$2,095,000**, JUNIOR HIGH SCHOOL, NEEDHAM, MASS. Town, Town Office Bldg., Needham, Mass. Bids July 11. CD 5/31.

▲ **Wadhams & May Co.**, 15 Lewis St., Hartford, Conn., LB **$1,067,438**, MUSIC DRAMATICS, classroom, Central Connecticut State College, New BI-R-163, NEW BRITAIN, CONN. State P. Wks. Comrs., 165 Capitol Ave., Hartford, Conn. Bids July 13. CD 6/21.

George A. Fuller Co., 809 Asylum Ave., Hartford, Conn., CA **$700,000**, 70,000 sq. ft. WAREHOUSE, NEWINGTON, CONN. Sears, Roebuck & Co., 80 State St., Hartford, Conn. Awarded July 8.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **N. J., Edison**—SCHOOL—BA 8/16—Bd. Educ., So. Colton Rd., junior high school. $1,900,000. Merchant-Seidel-Hickey, 1 Elm Row, New Brunswick, N. J., archts. CD 6/27.

▲ **N. Y., New York**—HOUSING—BA 9/11—New York City Housing Auth., 299 Broadway, New York Zone 7, Borgia Butler Houses, Proj. NYS-84, 990 units, Bronx Boro. Extended Date. $28,000,000. Joseph & Vladeck, 1841 Broadway, New York, N. Y., archts. CD 4/28.

HEAVY CONSTRUCTION—LB & CA

▲ **McLean Contracting Co.**, 1301 Fidelity Bldg., Baltimore 1, Md., CA **$1,966,700** Patapsco Ave. Bridge and Causeway, BALTIMORE, MD. City, Bureau of Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids June 15 CD 6/2 under LB.

▲ **Trinity Bldg. & Constr. Co.**, 4420 E. Eager St., Baltimore 5, Md., CA **$1,113,730**, Hy. Contr. 1576, drainage, paving Northern Parkway Highgate Dr. to Jones Falls Expressway, BALTIMORE, MD. City, Bureau of Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids June 8 Awarded July 6. CD 6/13 under LB.

▲ **B. & W. Constr. Co.**, 2 Riverside Rd., Baltimore 21, Md., LB **$1,005,239** (4 bidders) Contr. 6013RX, rehabilitation grading, drainage and paving Dundalk Ave., TOWSON, MD. Baltimore County, County Office Bldg., Towson 4, Md. Bids July 7. CD 6/24.

BUILDINGS—LB & CA

▲ **S. S. Silberblatt Inc.**, 25 W. 45 St., New York 19, N. Y., LB **$5,436,000** (9 bidders) general contract Senator Robert A. Taft HOUSES, Section II, Proj. No. NYC-28, 672 units, Manhattan Boro, NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids July 12. CD 6/6,
Heating Maintenance Corp. of New York, 220 E. 138 St., New York 61, N. Y., LB **$424,900** (5 bidders) heating and ventilating Senator Robert A. Taft Houses, Section II, (New York, N. Y.),
David Coyne & Co., Inc., 250 E. 43 St., New York, N. Y., LB **$473,760** (10 bidders) electrical work Senator Robert A. Taft Houses, Section II (New York, N. Y.),
Lipsky & Rosenthal Inc., 112 St. and Madison Ave., New York 29, N. Y., LB **$594,000** (8 bidders) plumbing, Senator Robert A. Taft Houses, Section II (New York, N. Y.).

Fischer-Malik, Inc., 11 Moffitt Blvd., Bay Shore, N. Y., LB **$816,529**, HIGH SCHOOL ADDN., ELEMENTARY SCHOOL. EAST HAMPTON, N. Y. Bd. Educ., Union Free School Dist. No. 1, East Hampton, N. Y. Bids June 28. CD 6/10.

▲ **Geo. F. Driscoll Co.**, 41 E. 42 St., New York 17, N. Y., LB **$2,970,890**, (5 bidders), superstructure, International HOTEL addn., Idlewild International Airport Proj. 790.051, IDLEWILD, N. Y. Port of New York Auth., 111 8 Ave., New York 11, N. Y. Bids July 12. CD 6/20.

▲ **Boston Pines Homes**, 80-18 31 Ave., Jackson Heights, N. Y., Owner Builds, **$1,200,000**, 72 two family HOUSES between 11 St. and 73 Sts., JACKSON HEIGHTS, N. Y. F. J. Meier, 31-08 30 Ave., Long Island City 2, N. Y., archts. CD 6/20.

▲ **Marcello Mezzullo Inc.**, 132 Pearl St., Port Chester, N. Y., CA **$2,750,000**, 1,200 room INN, Broadway and New York State Thruway Exit No. 9, TARRYTOWN, N. Y. Hilton Hotels Corp., 401 7 Ave., New York 1, N. Y. Bids May 24. CD 6/10, under LB.

▲ **Tubin Constr. Co.**, 1495 Hertel Ave., Buffalo, N. Y., CA est. **$1,300,000**, 130,000 sq. ft. brick veneer, air-conditioned SHOPPING PLAZA incl. 10 stores, Ridge and Langner Rd., WEST SENECA, N. Y. Benderson Development Co., 123 Franklin, Buffalo, N. Y. Howard Bell, 232 Delaware Ave., Buffalo 2, N. Y., archt.

▲ **Leonard Roth**, c/o Krugman & DePetro, 1330 Main Ave., Clifton, N. J., Owner Builds, **$6,000,000**, 600 HOUSES, off Rte. 9 and Barnegat, Berkeley Twp., BAYVILLE, N. J.

▲† **Carl Gonnsen**, 6210 Belair Rd., Baltimore 6, Md., CA **$1,539,122** repairs, imprvts. Chesapeake Gardens HOUSING Proj. ORD-18-110-60-196, ABERDEEN PROVING GROUNDS, MD. Procurement Office, Bldg. 505, Aberdeen Proving Grounds, Md. Sanders & Thomas, Security Trust Bldg., Pottstown, Pa., archts. CD 6/29 under LB.

▲ **Levitt & Sons**, U. S. Hy. 130, Levittown, N. J., Owner Builds, **$100,000,000**, 4,500 DWELLINGS, community facilities, So. Belair, BELAIR, MD.

▲ **Doreset Contracting Co., Inc.**, 4508 Hamilton St., Hyattsville, Md., CA **$1,494,500**, Fairmont JUNIOR HIGH SCHOOL, Fairmont Heights, MARLBORO, MD. Prince George's Bd. Educ., Marlboro, Md. Bids June 30. CD 7/6, under LB.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Dpt. Highways, 1221 E. Broad St., Richmond,
Va.—**Ames & Webb, Inc.** and **T. E. Rutter Corp.**, 3145 Virginia Beach Blvd., Norfolk, Va., CA **$909,077** 3.094 mi. 30 ft. x 8 in. cement concrete pavement, bit. top, 26 and 27 Sts Proj. 0247-122-101 C501 U-121-1 (6) City of Norfolk,
Va.—**W. H. Scott, Inc.**, Franklin, Va., CA **$549,802** grade and drain 4.301 mi. Proj. 0058-012-101 G 302, G 303, F-FG-024-3 (11) Contract 1 Brunswick Co
Va.—**Moore Bros. Co. Inc.**, Verona, Va., CA **$1,088,067** 2-lane 24 ft. x 7½ in. bit. conc. pavement 6.304 mi. Proj. 0081-085-038-p1, P3-1-81-1 (30) 14 Washington Co.
Va.—**Pioneer Constr. Co. Inc.**, Starky Rd., Roanoke, Va., CA **$579,007** 1 and 2 lane 24 ft. x 6 in. aggregate base bit. conc. top, 3.670 mi. Proj. 0033-082-008 C 501, F-016-171 Rockingham Co.
Va.—**Pendleton Constr. Corp.**, Wytheville, Va., CA **$729,650** 2-lane 24 ft. 7½ in. bit. conc. pavement 4.130 mi. Proj. 0081-098-008 P1, I-81-1 (39) 79 Wythe Co. Bids July 6, Awarded July 14, Grand total $3,855,603. CD 7/14 under LB.

▲ **Tidewater Constr. Co.**, 538 Front St., P. O. Box 57, Norfolk, Va. LB **$1,187,000** (14 bidders) under passes Centre Ave. and Main St., NEWPORT NEWS, VA., Chesapeake & Ohio Railway 9 and Main Sts., Richmond, Va., Bids July 1 CD 6/24.

▲ **Lee Constr. Co.**, P. O. Box 3608, Charlotte, N. C. CA **$1,065,742**, sewage treatment plant imprvts., ASHEBORO, N. C. City, City Hall, Asheboro, N. C. Bids May 26. CD 6/3 under LB.

BUILDINGS—LB & CA

▲ **H. L. C. & Assocs. Constr. Co. Inc.**, 1705 Battleground Ave., Greensboro, N. C., LB **$7,925,000** 450 unit Capehart HOUSING, Marine Corps School QUANTICO, VA, Area P. Wks., Chesapeake, U. S. Naval Weapons Plant, Wash., D. C., Bids July 13. CD 6/2.

▲ **Cassab Constr. Co.**, 2510 Chamberlayne Ave., Richmond, Va., CA **$1,000,000**, APARTMENTS, Riverside Dr., RICHMOND, VA. Slater & Aughan, 500 E. Main St., Richmond, Va. CD 6/6.

▲ **John W. Daniel Co.**, 3232 Riverside Dr., Danville, Va., CA **$1,805,411** Shrine Hill High SCHOOL, ROANOKE, VA. City School Bd., Roanoke, Va. Bids June 9, CD 6/22 under LB.

▲ **Kavanaugh-Smith & Co.**, 114 N. Green St., Greensboro, N. C., CA **$1,500,000**, SHOPPING CENTER, GREENSBORO, N. C. O'Henry Shopping Center, Inc., Summit Ave. and Cone Blvd., Greensboro, N. C. CD 6/29.

▲ **The Jordan Co.**, 2581 Piedmont Ave. N.E., Atlanta, Ga., CA **$2,184,000**, 121 APARTMENT units, ATLANTA, GA. Valley Park Apartments, c/o Dobbs & Co., Forsyth Bldg., Atlanta, Ga. Bids Jan. 26. CD 2/2, under LB.

▲ **J. M. Brown Constr. Co.**, P. O. Box 102, Shreveport, La., CA **$1,102,407**, (7 bidders) 1 story, 41,000 sq ft. brick and tile HOSPITAL, RUSTON, LA. Lincoln Parish Police Jury, Ruston, La. Bids July 7 CD 7/1.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

BUILDINGS—BA

▲ **Ill., Chicago**—SCHOOL—BA 8/1—Bd. Educ., 228 N. LaSalle St., Zone 1, Drake elementary school, 2117 S. Drake Ave. $1,200,000. Loebl, Schlossman & Bennett, 333 N. Michigan Ave., Chicago, Zone 1, archts. CD 2/4/59.

HEAVY CONSTRUCTION—LB & CA

▲ **MICHIGAN**—State Hy. Dept., 732 Mason Bldg., Lansing, Zone 26, Bids opened July 6,
Mich.—**Rieth Riley Constr. Co. Inc.**, 837 Emmet St., P. O. Box 114, Battle Creek, Mich., LB **$499,859**, reconstr. 9.1 mi., M-60 and US 112 from Galien west to Squaw Creek. Berrien Co. CD 6/21.
Mich.—**O. E. Gooding**, 125 N. Normal St., Ypsilanti, Mich., and **Ann Arbor Const. Co.**, 221 Felch St., Ann Arbor, Mich., LB **$459,998**. reconstr. grading, drainage structures, 8.7 mi. M-144 north from south county line. Crawford Co. CD 6/24.

Sargent Constr. Co., 2840 Bay Rd., Saginaw, Mich. LB **$262,261**, wid'n existing roadway 5.1 mi. M-15 from Davidson south to Hadley Rd.; M-21 in Flint; roadway betterment M-121 (Bristol Rd.) east of Torrey Rd., Genesee Co. CD 6/24.

Mich.—**Spartan Asphalt & Paving Co.**, South Cedar St., Holt, Mich., LB **$94,727**, grading, drainage structures, 2.8 mi. M-36 south from Mason to Diamond Rd., Ingham Co. CD 6/24.
Mich.—**Globe Constr. Co.**, 312 Peck Bldg., Kalamazoo, Mich., LB **$166,113**, imprvts., wid'n, b. conc. surf. 2.8 mi. between Whites Rd. and Michigan Ave., Park St., Park Place. Kalamazoo Co. CD 6/24.
Mich.—**The Kutchins Co.**, 1516 Moores River Dr., P. O. Box 1301, Lansing, Mich., LB **$173,883**, 57 ft. b. conc. surf. M-53, from 8 Mile to 10½ Mile Rds., Warren and Centerline; crossover work at 13 Mile Rd. Macomb Co. CD 7/1.
Mich.—**D. J. McQuestion & Sons**, 4909 Horon Ave., Dearborn, Mich., and **MacLean Constr. Co.**, 731 E. Sheridan Rd., Lansing, Mich., LB **$3,377,222**, 5.2 mi. Interstate 196 (US 16 Freeway), 9 STRUCTURES, Muskegon Co. CD 6/21.
Mich.—Blue Water **Excavating Co.**, 1821 Elmwood St., Port Huron, Mich., LB **$164,741**, reconstr., grading, drainage structures, aggreg. surf., 2.3 mi. Range Rd., south from US 25 in Marysville, St. Clair Co. CD 6/24.
Mich.—**Jutton-Kelly; C. J. Rodgers, Inc.; Cooke Contr. Co.**, 1116 Penobscot Bldg., Detroit, Zone 26, Mich., LB **$3,653,634**, 0.60 mi. Chrysler Freeway, 4 structures, paving, pump station, Transformer and control bldg., etc., Division St. north to Alexandrine Ave., Wayne Co. CD 6/24.
Mich.—**C. E. Frisinger**, 1790 Shadford Rd., Ann Arbor, Mich., LB **$234,743**, reconstr., grading, drainage structures, 22 ft. bit aggreg., surf. 3.0 mi., Rawsonville Rd. south from Huron Dr., 3.5 mi. west of Belleville. Wayne Co. CD 7/1.

MICHIGAN—State Hy. Dept., 732 Mason Bldg., Lansing Zone 26, Bids opened July 6,
Mich.—**E. C. Nolan Co.**, and **Jarvick Constr. Co.**, 8121 Warren St., Centerline, Mich., LB **$125,835**, 210 ft. bridge to carry State Rd. over Tittabawassee River, 3.5 mi. west of Saginaw. Saginaw Co. CD 7/1.
Mich.—**Wayne Brook, Inc.** and **H. R. Boyd**, 22285 Michigan Ave., Dearborn, Mich., LB **$99,689**, bridge to replace existing structure carrying Shiawassee St. Over Shiawassee River, Corunna. Shiawassee Co. CD 6/24.

BUILDINGS—LB & CA

▲ **Wargo Builders**, 9219 Miles Ave., Cleveland 5,O. CA est. **$1,200,000**, 40 HOMES, Brandywine Estates, NORTHFIELD, O. Wargo Realty Co., 9219 Miles Ave., Cleveland 5, O.

▲ **Valleydale Builders Inc.**, 3699 Kent Rd., Stow, O. Own forces **$5,000,000**, 235 US steel pre-fab ranch and tri-level HOMES, Northport Home development, STOW, O.

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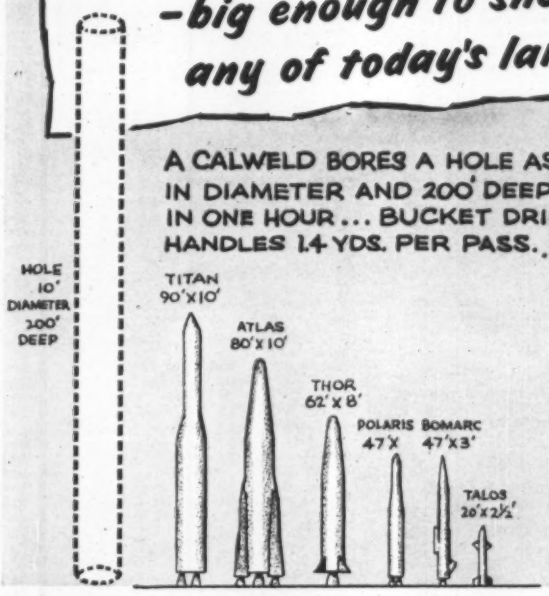

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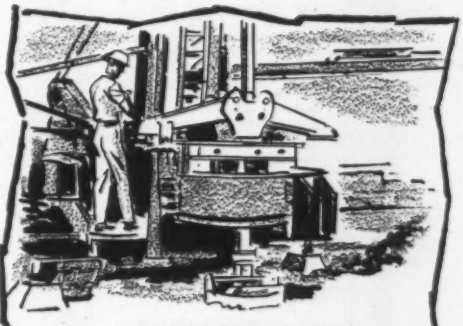

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▲ **E. W. Sproul Constr. Co.,** 173 W. Madison St., Chicago 2, Ill., CA **$2,211,796,** HIGH SCHOOL, Goebbert Rd., ARLINGTON HEIGHTS, ILL. Arlington Heights High School Dist. 214, 502 W. Euclid Ave., Arlington Heights, Ill. Bids June 16. Awarded July 7. CD 6/30 under LB.

Abbot Constr. Co., 5789 N. Lincoln Ave., Chicago, Ill. LB **$509,509,** THORP SCHOOL addn., 8914 Buffalo Ave., CHICAGO, ILL. Bd. Educ., 228 N. LaSalle St., Chicago 1, Ill. Bids July 5. CD 6/27.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲ **Arkansas**—BA 8/30—U. S. Eng., Gay Bldg., Little Rock, design, mfg., test and deliver two 77,440 h.p. turbines Beaver Dam, White River, CIVENG-03-030-61-4. $2,000,000. Plans deposit $1. CD 9/15.

BUILDINGS—BA

▲ **Okla., Oklahoma City**—BANK—BA 8/2—Tenth Federal Reserve Bank, 226 NW 3rd St., bank addn., $2,000,000. Sorey, Hill & Sorey, 809 NW 36th St., archts. CD 1/10/58.

Minn., Rochester—POWER PLANT IMPRVS.—BA 8/11—City, City Hall, steam generating unit, Power Plant. $1,350,000. Plans deposit $60. Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, Minn., engrs. CD 5/11.

HEAVY CONSTRUCTION—LB & CA

▲ **Gunnison Contractors, Inc.,** P.O. Box 1679, Wichita, Kan., LB **$2,430,343,** est. $2,193,798, Interceptor Sewer 2177-B, 10,215 ft. 72 in. monolithic sewer, 10,215 ft. 72. in. rein.-con., OMAHA, NEB. City, City Hall, Omaha, Neb. Bids June 7. CD 5/17.

▲ **COLORADO**—State Hy. Dpt., 4201 East Arkansas, Denver. Bids opened July 13.

Northwestern Engineering Co., 6000 Colorado Blvd., Denver, Colo., LB **$1,718,603,** (9 bidders), stabilization and conc. paving 12.172 mi. Watkins and Strasburg, Colorado Proj. No. I-70-4 (8) 303 Adams and Arapahoe Counties. CD 6/29.

BUILDINGS—LB & CA

▲ **Advance Realty Co.,** 1414 W. Locust St., Davenport, Iowa and **Dohrn Realtors,** Bettendorf, Iowa, Owner builds **$6,500,000** 110 four unit APARTMENTS, Kimberly Rd. Utica Rd. BETTENDORF, IOWA. CD 4/19.

▲ **Kuipers Constr. Co.,** 121 E. 2 St., Mitchell, S. D., **McTighe Inc.,** 113 E. 2 St., Mitchell, S. D. and **Tracy Electric Co.,** 112 West First St., Mitchell, S. D., CA **$1,750,000** milk products PLANT, MITCHELL, S. D., M & R Dietetic Laboratories, Inc., 625 Cleveland St., Columbus, O. CD 3/25.

▲ **Wm. H. & Nelson Cunliff Co.,** 3320 Lindell Blvd., St. Louis 3, Mo., CA est. **$1,500,000,** 110,000 sq. ft. SHOPPING CENTER, Lindbergh Blvd. and Baptist Church Rd., CONCORD VILLAGE (ST. LOUIS 23 P. O.), MO. Concord Plaza Development Co., c/o Bank of Concord Village, Lindbergh Blvd., Concord Village, Mo. Fred C. McNeill & Ralph R. Heldt, 3320 Lindell Blvd., St. Louis 3, Mo., archts.

▲ **The Stocker Constr. Co.,** 3928 Lindell Blvd., St. Louis 8, Mo., CA est. **$2,000,000,** 245,000 sq. ft. PLANT for flexible packing materials, Hazelwood area near Lambert-St. Louis Municipal Airport for use by Western-Waxide Div., ST. LOUIS COUNTY, MO. Crown Zellerbach Corp., C. G. McDonald, ch. eng. 6363 Airport Way, Seattle, Wash. Bids June 20. CD 6/9.

▲ **Kelley-Nelson Constr. Co.,** Gazette Bldg., Little Rock, Ark., CA **$1,020,205** (6 bidders) 2 DORMITORIES Henderson State Teachers College, ARKADELPHIA, ARK., Henderson State Teachers College, Arkadelphia, Ark., Bids July 12. CD 5/27.

▲ **Forcum & Lennon,** P. O. Box 339, Dyersburg, Tenn., LB **$1,412,888** (3 bidders) HOUSING ARK 21-1 OSCEOLA, ARK., Housing Auth., City Hall, Osceola, Ark., Bids July 12. CD 6/30.

▲ **Nelson Puett & Associates Builders,** 6427 Richmond Drive, Houston, Tex. Owner Builds **$1,341,250** 42 DWELLINGS, Western Section 1 of Briargrove, HOUSTON, TEX. CD 5/2.

▲ **Nierth Bros. Builders,** 4072 Westheimer St., Houston Tex., Owner Builds, **$1,256,375.** 36 masonry DWELLINGS, Afton Village, HOUSTON, TEX. CD 6/27.

▲ **Krist Hubert, Hubert Lumber Co.,** 5104 Elm St., Houston, Tex., Owner Builds, **$1,298,750,** 45 DWELLINGS, Sec. 1 of New Maplewood, HOUSTON, TEX. CD 6/23.

▲ **W. R. Grimshaw Constr. Co.,** P. O. Box 22486, Houston, Tex., LB **$2,228,376.** SHOPPING CENTER parking, site earthwork, HOUSTON, TEX. Syndicated Properties, Inc., 1801 Main St., Houston, Tex. CD 6/15.

▲ **Percy Smith Interests,** State National Bldg., Houston, Tex., Owner Builds, **$1,302,000,** 82 DWELLINGS, HOUSTON, TEX. CD 6/10.

▲ **Don Shaw & Paul Farr,** 910 9 Ave., Greeley, Colo., Separate Contracts **$1,500,000** six 2 story, 138 unit, swimming pool APARTMENT, GREELEY, COLO. Roland Wilson, 301 E. Colfax, Denver, oClo. archt.

Wilkins Co. Inc., Box 286, Boulder, Colo., CA **$913,626** 1 and 2 story 68,889 sq. ft. Marie Creighton Junior High SCHOOL, West 6 and Kipling, LAKEWOOD, COLO. School Dist. R-1, 1580 Yarrow, Lakewood, Colo., Bids June 21 Awarded July 8, CD 6/28 under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Neb., Lincoln**—MISSILE ASSEMBLY & TECHNICAL SUPPLY BLDG.—BA 8/11—U. S. Eng., 1709 Jackson, Omaha 2, missile assembly and technical supply bldg., Lincoln Air Force Base. ENG 25-066-61-1. $1,200,000. CD 11/4/59.

† **Wash., Spokane**—FACILITIES—BA 8/16—U. S. Eng., 1519 S. Alaskan Way, Seattle, Zone 4, facility modifications, Fairchild defense area, ENG-45-107-61-5. Plans deposit $1.

BUILDINGS—BA

Wash., Renton—SCHOOL—BA 8/2—School Dist. 403, 1525 4th Ave. N., 39,665 sq. ft. masonry, Cascade elementary school, $500,000. Plans deposit $25. Johnston-Campanella & Assocs., 830 Riverside Rd. N., archts. CD 4/14.

▲ **California**—CONSERVATION CENTER—BA 8/23—State Div. Architecture, 1120 N St., Sacramento, Main Bldg. Group, to incl. 20 bldgs. 411,000 sq. ft. mostly steel and masonry, California Conservation Center, State Dpt. Corrections, Lassen Co. W. O. 4304GC-11. $11,360,000. Plans deposit $300.

HEAVY CONSTRUCTION—LB & CA

▲ **Western Contracting Corp.,** 400 Benson Bldg., Sioux City, Iowa, CA **$6,000,000** removal 12 m. cu. yd. waste from upper level open pit copper mine, BINGHAM, UTAH. Kennecott Copper Corp., Kearns Bldg., Salt Lake City 1, Utah.
Joy Drilling & Manufacturing Co., 1021 E. Superior St., Minneapolis, Minn., CA **$1,500,000** 62,000 ft. exploratory diamond core drilling (Bingham, Utah).

▲ **WASHINGTON**—State Hy. Comn., Olympia, Bids Opened 7/12,

Manson Constr. & Engineering Co., 5209 E. Marginal Way, Seattle, Wash., LB **$1,525,380,** (9 bidders), rein.-conc. piers for bridge over Columbia River, Vantage, Grant and Kittitas Counties, CD 6/22.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, bids opened 7/13,

Morrison-Knudsen, Inc. and Mercer, Fraser, Inc., 2 and Commercial Sts., Eureka, Calif., LB **$2,102,369,** (5 bidders), 3.7 mi. four lane freeway US 101 between 0.2 mi. south, Loleta Dr. and 0.7 mi. south, Fields Landing, incl. two interchanges, I-HUM-1-G, Humboldt Co. CD 6/16.

▲† **Max Drilling Co.,** 91 Halsey St., Newark, N. J., LB **$1,015,000,** (4 bidders), rehabilitation 505 units Wherry Housing. IFB 60-126. HAMILTON AIR FORCE BASE, CALIF. Base Procurement Office, Hamilton Air Force Base, Calif. CD 9/28/59.

▲ **OREGON**—State Hy. Comn., Hy. Bldg., Salem,

Ore.—**Warren Northwest Inc.,** 9860 NE Hancock Dr., Portland, Ore., CA **$563,825** (2 bidders) grading, paving 3.3 mi. 210 ft. RCDG bridge, Tualatin Valley Hy., Proj. FAP F 183(13) Washington Co.; CA **$114,649** (3 bidders) paving 7.6 mi. Redwood Hy., Josephine Co.; CA **$102,139** (4 bidders) paving, shoulder oiling 7.02 mi. Sunset Hy. Clatsop Co.

Ore.—**Peter Kiewit Sons Co.,** 215 S. V St., Vancouver, Wash., CA **$1,826,728** (5 bidders) grading, detour bridge 1.18 mi. Page St.-Main St. unit, East Bank Freeway, Pacific Hy., Multnomah Co.

Ore.—**George E. Blaisdell & Son** and **Shirley G. Stone Co.,** Oswego, Ore., CA **$224,778** (7 bidders) grading, 5.36 mi. North Umpqua Rd., Douglas Co.

Ore.—**Roy L. Houck Sons Corp.,** 1585 N. 20th St., Salem, Ore., CA **$266,020,** (4 bidders) grading 7.7 mi., three RCDG bridges, Goshen-Coast Fork Willamette River Section Pacific Hy., Proj. FAIHP I-5-3 (14)181, Lane Co.

Ore.—**Oregon Asphaltic Paving Co.,** 1220 SE 190th Ave., Portland, Ore., CA **$111,077,** (2 bidders) paving 2.37 mi. 136th Ave. to 181st Ave. on NE Glisan St., Proj. FAP S-297(4) Bids June 30. Awarded July 7. Grand Total $3,209,216. CD 6/16.

▲ **OREGON**—State Hy. Comn., Hy. Bldg., Salem, Bids opened 6/30,

Ore.—**S & D Constr. Co.,** 4930 SE Reedway St., Portland, Ore., CA **$424,000** (7 bidders) 620 ft. bridge and two overflow structures, Peripheral Rd., Proj. FAP S 441(1) Lane Co.; CA **$174,000,** (4 bidders) Rogue River and Paul B. Rynning Bridges, Jackson Co.

Ore.—**George E. Berry,** 2990 SW Underwood Dr., Portland, Ore., CA **$180,272** (8 bidders) bridge structure, grading, paving Scholls Rd.

Ore.—**Johnston & Bryant,** Newberg, Ore., CA **$238,666** (5 bidders) 732 ft. rein.-conc. DG bridge, Oregon Coast Hy. Coos Co.

Ore.—**Tom Lillebo,** Reedsport, Ore., CA **$162,325** (6 bidders) 563 ft. RCDG bridge over Coast fork Willamette River, Pacific Hy., Proj. FAIHP I-5-3(14) 181. Awarded July 7. Grand Total $1,179,263. CD 6/16.

▲ **Peter Kiewit & Sons Co.,** 1024 Omaha National Bank Bldg., Omaha, Neb., LB **$14,797,498,** (10 bidders), main section, 90,000 kw Carmen-Smith Hydro Electric Proj. Upper McKenzie River, EUGENE, ORE. Eugene Water & Electric Bd., Box 1112, Eugene, Ore. Bids July 8. CD 4/28.

McDaniel & Burroughs, Inc., 1004 Yuba St., Marysville, Calif., LB **$399,800,** (6 bidders), office, barracks, dining and recreation, dormitory, shop, storage, warehouse, etc., 2 residences and garages, Washington Ridge Forestry Conservation Camp, Nevada City, CALIFORNIA. State Div. Architecture, 1120 N St., Sacramento, Calif. CD 5/9.

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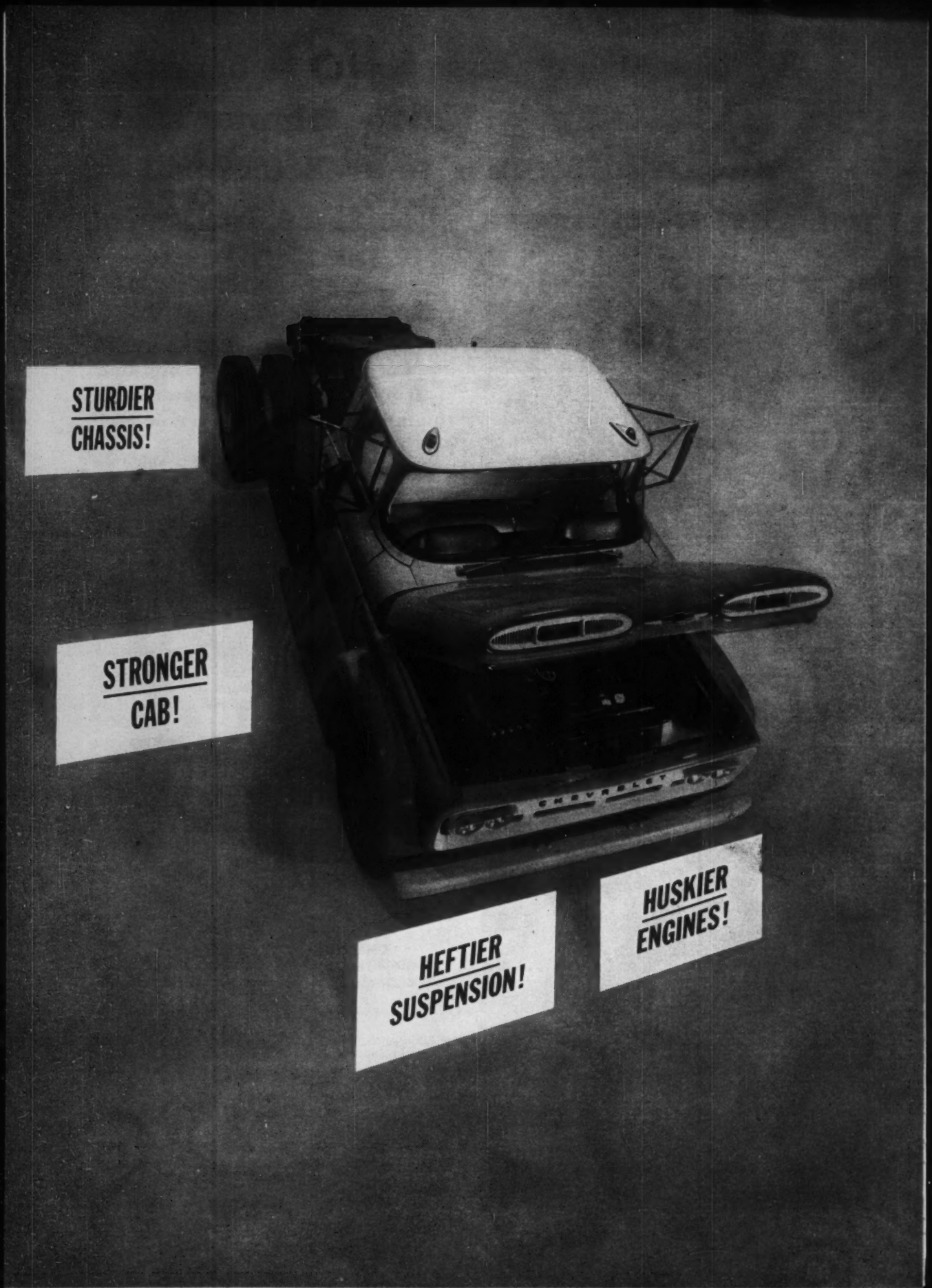
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NEW STRONGER CAB CONSTRUCTION . . . to add years to the life of your truck. Tough new steel braces reinforce cab underbody, help keep cab tight and solid, provide a sturdy foundation for long cab life. Husky new box-section pillars frame door openings; keep doors in lasting alignment. New roof panel is double walled for extra strength.

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Here are the strongest truck components known . . . assembled lastingly, with care and craftsmanship. It's Chevrolet's way of making sure you get maximum truck life; extra assurance of higher profits because of far fewer maintenance and repair charges.

■ When it comes to putting out a good day's work at least expense, a '60 Chevy truck knuckles under to nobody. Because, as we're showing you here, Chevrolet's building 'em *tough* these days, even tougher than ever before. And that's saying something when you consider how Chevrolet trucks have stood up over the years. Here's a typical example:

160,000 miles on a truck-busting job—and still going strong! The strength and stamina of this Chevy heavyweight has paid off handsomely for Emil Horwatich, Pewaukee, Wisconsin, gravel hauler. This tandem axle Chevy with Workmaster V8 has logged 160,000 miles in the toughest kind of service: hauling maximum loads about 2,200 miles a week, slogging over off-the-road terrain much of the time. "This baby just won't quit," Mr. Horwatich says. "She's a real money saver."

That kind of performance has been Chevy's stock-in-trade for years; and the '60's are designed to put out even more of it. Next time you're in the area, drop by your Chevrolet dealer's. Find out for yourself why more truckers than ever before are getting more work and earnings out of Chevrolet trucks. And make sure you *test drive* a '60 Chevy. You'll wonder how you've managed without one! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

1960 CHEVROLET STURDI-BILT TRUCKS CHEVROLET

IDAHO—State Hy. Dpt., Boise, Bids opened July 5, **Carl E. Nelson Constr. Co.**, Logan, Utah, LB **$199,795** plant mix bit. surf. and seal coat shoulders, 4.714 mi. U. S. 91 Fremont Co. CD 6/27.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
Griffith Co., 1060 S. Broadway, Los Angeles 15, Calif., CA **$9,154,897**, 0.7 mi. viaduct to carry eight lane Santa Monica Freeway between Harbor Freeway and Main St., Los Angeles, incl. surf. various ramps and connector roads, VII-L.A. 173, 165, La., Los Angeles Co. Bids June 30, awarded July 11. CD 7/7, under LB.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento, Bids opened 7/6,
Dicco, Inc., P.O. Box 217, Station A, Bakersfield, Calif., LB **$219,431**, (5 bidders), resurf. 43 mi. state hy. various locations, Kern and Tulare Counties. CD 6/10.
Winton Jones Co., 1949 Arnold Industrial Hy., Concord, Calif., LB **$187,500**, (5 bidders), wid'n. creek channel, levees, grout rock riprap bank protection, Bancroft Rd. to Ygnacio Valley Road, Proj. 32-1003R, Walnut Creek, MARTINEZ, CALIF. North Walnut Creek Emergency Flood Control Dist., Hall of Records, Martinez, Calif.

▲ **C. K.-FM** (Contracting & Materials Co., 1235 Dodge St., Evanston, Ill., Kenny Constr. Co., 3220 Oakton St., Chicago, Ill., and Foster Marsch Corp., 3911 Pacific Hy., San Diego 1, Calif.) and **Graver Tank Mfg. Div., Union Tank Car Co.**, 332 S. Michigan St., Chicago, Ill., CA **$14,028,292**, 2nd section "Giant M" aqueduct, 32.5 mi. from Pardee Dam to Walnut Creek, Mokelumne Project, OAKLAND, CALIF. East Bay Municipal Utility Dist., 2130 Adeline St., Oakland, Calif. Bids June 24.

Parish Brothers, Inc., P.O. Box 6, Benicia, Calif., LB **$247,018**, (4 bidders), road, drainage, water and sanitary sewer sys., Sierra Country Club Subdivision, PLACERVILLE, CALIF. City, City Hall, Placerville, Calif. CD 6/21/48.

Long, Market & Howley, P.O. Box 356, Spring Valley, Calif., LB **$98,075**, (5 bidders), c.i. water main replacement, Group 116, SAN DIEGO, CALIF. City, Purchasing, Civic Center, San Diego 1, Calif. Bids July 6. CD 6/21.

Fay Improvement Co., 101 Carolina St., San Francisco, Calif., LB **$284,760**, (4 bidders), track removal, pavement reconstr., Jackson St., SAN FRANCISCO, CALIF. City and County of San Francisco, City Hall, Room 282, San Francisco, Calif. CD 11/13/47.

Drennan Constr. Co., P.O. Box 487, Oildale, Calif., LB **$157,042**, (4 bidders), water treatment plant and distrib. sys., SOUTH DOS PALOS, CALIF. South Dos Palos County Water Dist., Box 278, South Dos Palos, Calif. Charles S. McCandless & Co., Box 845, Menlo Park, Calif., engr. Bids June 30. CD 11/11/59.

BUILDINGS—LB & CA

▲ **Rayonier Inc.**, 161 E. 42nd St., New York, N. Y., Day Labor, **$2,500,000**, PAPER MACHINE bldg., soda base recovery PLANT, two storage bldgs., HOQUIAM, WASH. CD 7/8.

▲ **Wick Constr. Co.**, 720 N. 35th St., Seattle 3, Wash., CA **$1,935,200**, OFFICE, Highway and License Depts., OLYMPIA, WASH. State Dpt. General Admin., General Admin. Bldg., Olympia, Wash. CD 6/30, under LB.
Capitol Plumbing & Heating Co., Box 126, Olympia, Wash., CA **$1,051,151**, mechanical contract for OFFICE, hy., license and employment security depts. (Olympia, Wash.).
C. T. Madsen, Inc., 808 N. 12th St., Tacoma, Wash., CA **$641,300**, electrical contract for OFFICE, hy., license and employment security depts. (Olympia, Wash.).
D. Jones, 2213 N. Proctor, Tacoma, Wash., CA **$1,300,000**, general contract for office, for employment security dept. (Olympia, Wash.). Grand total $4,927,651. CD 6/30, under LB.

▲ **J. H. Sellen Constr. Co.**, 228 9th Ave. N., Seattle, Wash., LB **$1,356,000** (9 bidders), five 2 story, frame, masonry, air conditioned MOTEL, Seattle-Tacoma Airport, SEATTLE, WASH. Hilton Hotels, Inc., 277 Park Ave., New York 17, N. Y. Bids July 6. CD 6/16.

▲ **Nelson Constr. Co.**, RFD No. 1, Ferndale, Wash., LB **$1,194,500**, (4 bidders), general contract RECEIVING, TREATMENT and MEDICAL structure, Northern State Hospital, SEDRO WOOLEY Wash., State Dpt. General Admin., General Admin. Bldg., Olympia, Wash. Bids July 12, CD 6/28.

Emil Hirning, 7312 N.E. Altameda St., Portland, Ore., Owner Builds, **$538,000**, six 2 story APARTMENTS, PORTLAND, ORE. I. M. Bruinier & Assocs., 8313 S.W. Barbur Blvd., Portland, Ore., archts.

▲ **B & R Constr. Co.**, 110 Market St., San Francisco, Calif., CA **$1,425,000**, 67,751 sq. ft. McKinleyville HIGH SCHOOL, ARCATA, CALIF. Arcata Union High School Dist., 1720 M St., Arcata, Calif. Bids May 25. CD 6/2, under LB.

▲ **The Brattain Co., Inc.**, 1304 W. Commonwealth Ave., Fullerton, Calif., CA Approx. **$1,000,000**, 81 RESIDENCES, Poinsettia Heights No. 6, ENCINITAS, CALIF. Arco Develop Corp., 1304 W. Commonwealth Ave., Fullerton, Calif.

▲ **B & R Constr. Co.**, 110 Market St., San Francisco, Calif., LB **$2,442,000**, Base Bid (5 bidders), 153,000 sq. ft. Highland HIGH SCHOOL, HAYWARD, CALIF. Hayward Union High School Dist., 305 Elmhurst, Hayward, Calif. Bids July 6. CD 6/6.

▲ **Branden Enterprises**, 24970 Hesperian Blvd., Hayward, Calif., Owner Builds, **$1,500,000**, 134 HOMES, Tropicana Village Subdivision, SAN JOSE, CALIF. David T. Johnson, 1440 Broadway, Oakland, Calif., archt.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **Henry J. Kaiser Constr. Co., Tallman Constr. and Gilpin Constr.** 1030 W. Georgia St., Vancouver, B. C. CA **$1,760,000** est. $2,500,000 7,300 ft. jet runway with high speed turn off, Vancouver International Airport VANCOUVER, B. C. Trans Canada Airlines, 1080 University St., Montreal, Que., Awarded June 14. CD 12/21/59.

BUILDINGS—LB & CA

▲ **Ellis-Don Ltd.**, Box 852, London, Ont., LB **$3,161,000** (10 bidders) 4 story POSTAL TERMINAL, concrete fndn., Clarence and York Sts., LONDON, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids July 6. CD 6/6.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—BA

† **Canal Zone**—BA 8/15—Panama Canal Co., Balboa Heights, water main, Muraflores-Corozal. $782,000.

† **Canal Zone**—BA 9/30—Panama Canal Co., Balboa Heights, sewage disposal program, Corozal, Los Rios, Albrook, Diablo Heights, Ancon portion near Balboa Heights. CD 3/29.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲ **Carl G. Fisher Corp.**, Security Trust Bldg., Miami, Fla., U. S. A., CA est. **$1,000,000** SHOPPING CENTER Parking Lot, Bank, Post Office, 5 acres, Providence Island, Coral Harbor, NASSAU, BAHAMAS. Coral Harbor Co. Ltd., c/o Contractor. Robert M. Little, 2180 Brickill Ave., Miami, Fla., U. S. A., archt.

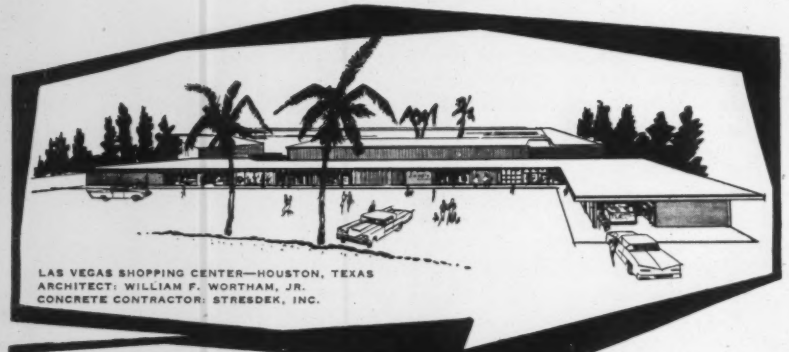
▲† **Oman-Farnsworth-Wright**, 1515 S. Salcedo St., New Orleans 2, La., U.S.A., CA **$3,710,678** misc. support facilities, Riyadh, SAUDI ARABIA. U. S. Eng., Mediterranean Div., Leghorn, Italy, APO 19, New York, N. Y., U.S.A. (Correction—Contractor's Name). CD 6/30 under CA.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Peru**—BA 10/24—Ministry of Development & P. Wks., Secretaria General del Fondo Nacional de Desarrollo Economico, Avenida Uruguay 514, Lima, water supply and sanitary projects, northern Peru. $5,000,000. Plans deposit $350.

The Prescon System of Post-Tensioning Prestressed Concrete Works for You From Design and Engineering to Completion



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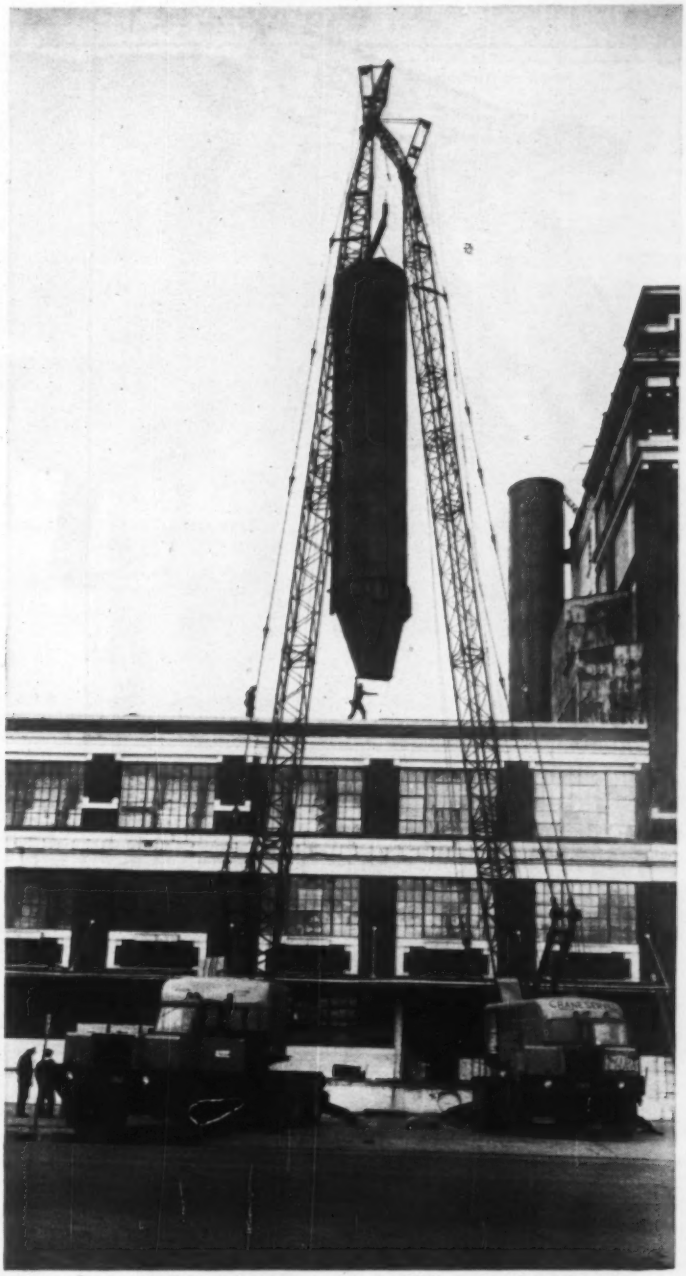

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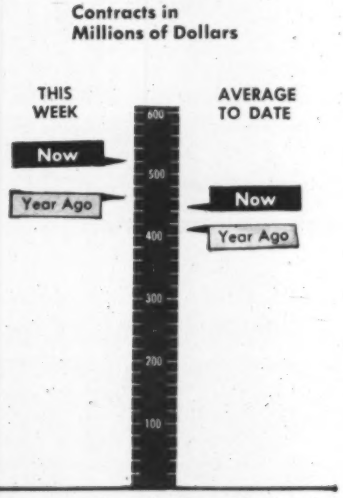
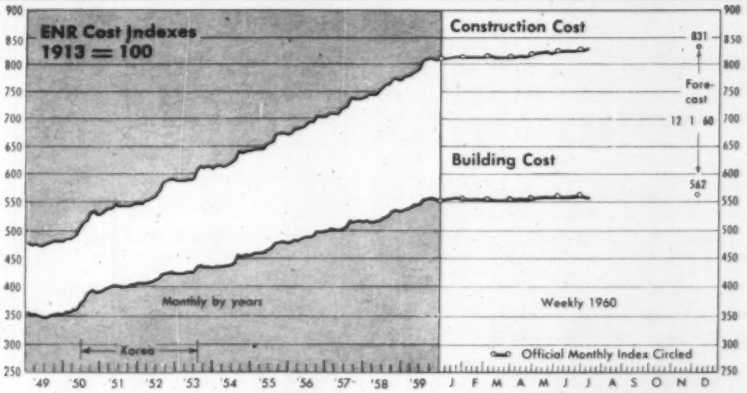
Construction Scoreboard

This Week . . .




ENR Cost Indexes 1913 = 100
Construction Cost
831
Fore-cast
12 1 60
Building Cost
562
Monthly by years
Weekly 1960
Korea
Official Monthly Index Circled
'49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 J F M A M J J A S O N D

ENR INDEXES (1913=100), 20-cities' average	Week of June 10 1960	% Change from June 10 1960	% Change from July 16 1959
Construction Cost	830.53	+0.5	+2.7
Building Cost	560.81	+0.08	+1.2

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

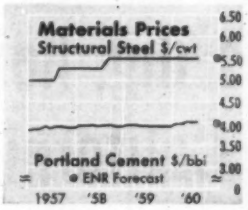
Contracts Awarded In 50 States By Type	This Week millions	Cum. 29 wks 1960	Chge '59-'60 %
All Heavy Construction	$519.8	$13,001.6	+ 9
By Ownership			
PRIVATE	310.5	7,002.2	+20
PUBLIC	209.3	5,999.4	− 2
State & Municipal	191.4	4,532.8	+ 7
Federal	17.9	1,466.6	−22
By Type of Work			
PUBLIC			
Waterworks	20.1	283.7	+ 9
Sewerage	13.4	336.6	−12
Bridges*	9.1	448.0	+31
Highways	88.6	1,861.0	+ 5
Earthwork, Dams & Waterways	6.4	471.4	− 1
Buildings:			
Excl. Housing	45.4	1,382.7	−11
Housing	8.3	349.4	−25
Unclassified	18.0	867.9	0
PRIVATE			
Buildings:			
Mass Housing	196.1	3,546.3	+31
Commercial	28.5	1,372.2	+ 8
Industrial	75.1	1,532.9	− 3
Unclassified	10.8	549.5	+93

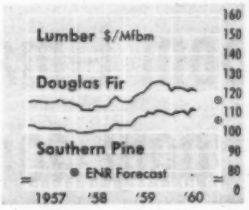
* Includes Private bridges

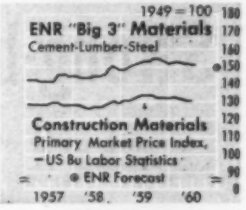
NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of July 14 millions	Cum. 28 wks 1960	Chge '59-'60 %
Corporate Securities	$ 43.4	$1,647.8	−26
State and Municipal:			
All Except Housing	246.0	3,851.7	+ 9
Housing	....	182.2	+272
Federal Loans	26.7	105.6	+20
Federal Aid	....	2,717.8	+15,000
Total Nonfederal	$316.0	$8,505.1	+44
Federal Appropriations:			
Projects in U.S.	$100.0	$ 291.6	+661
Outside U.S.	....	10.8	....
Total New Capital	$416.0	$8,807.4	+48



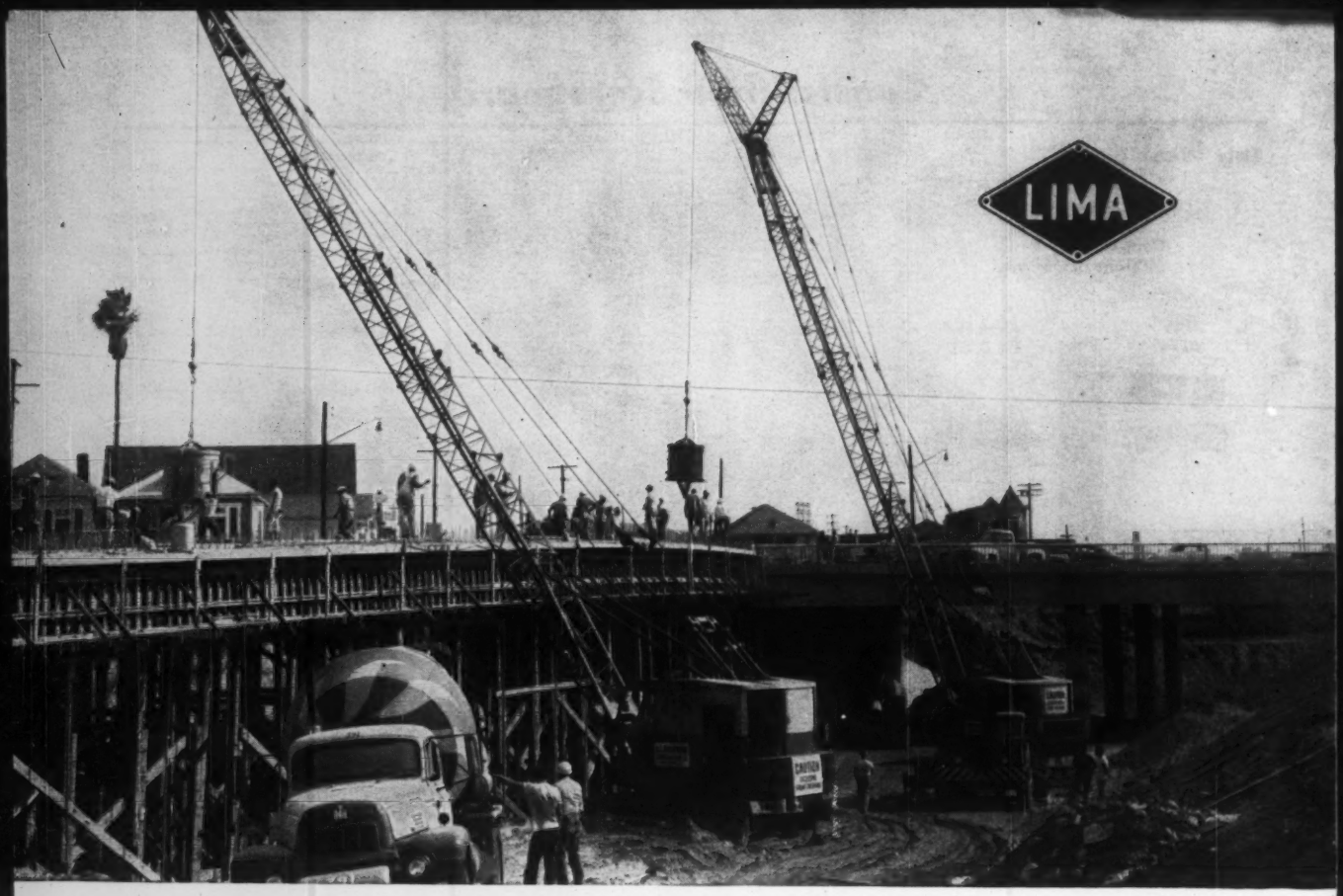




ENR COST INDEXES IN 22 CITIES, 1913 = 100

R: June Index Revised

City	Construction Cost July 1960	Construction Cost Percent Change from last Month	Construction Cost Percent Change from last Year	Building Cost July 1960	Building Cost Percent Change from last Month	Building Cost Percent Change from last Year
Atlanta	652.78	+3.1	+7.2	501.82	+0.8	+5.2
Baltimore	754.72	0	+1.5	561.73	0	+1.8
Birmingham	654.37	−0.1	+3.6	521.70	+0.8	+3.3
Boston	834.30	−0.3	+0.5	558.30	−0.4	+0.1
Chicago	918.71	0	−0.5	593.77	0R	+0.1
Cincinnati	843.70	−0.1	+3.1	549.41	+0.4	+2.5
Cleveland	944.49	0	+3.2	561.64	0	+2.5
Dallas	639.06	+1.6	+9.4	519.19	0	+7.2
Denver	757.31	+0.6	+1.1	552.27	+1.3	+1.0
Detroit	966.14	0R	+0.4	607.92	+0.6	+1.6
Kansas City	823.46	0R	+2.4	561.76	0	+0.6
Los Angeles	868.20	−0.3	−1.2	563.57	−0.4	+0.9
Minneapolis	890.16	0	+1.3	576.45	+0.6	+3.5
New Orleans	641.30	−1.3	+2.7	509.05	−1.6	+1.0
New York	1,041.60	+3.3	+2.3	651.22	+0.7	+0.3
Philadelphia	830.37	0	+4.8	582.90	0	+1.2
Pittsburgh	885.14	0R	+3.9	617.86R	0	+2.8
St. Louis	898.72	−0.1	+1.6	582.30	−0.2	−0.2
San Francisco	884.98	0	+7.4	553.64	0	+0.7
Seattle	857.25	0	+2.5	503.73	0	−0.3
U. S.—20 Cities' avg.	829.33	+0.3R	+2.8	561.47	+0.3	+1.8
Montreal	650.39	0	+4.8	466.08	0	+2.1
Toronto	697.12	0R	+5.1	497.01	0R	+0.6



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"We also feel that Limas are high-production machines—we have tested their performance against a competitive machine and it couldn't begin to measure up to the Lima's output. Because Limas are built better, they stand up longer and are easy to maintain."—*F. A. Seymour, project supt., J. C. Boespflug Construction Co., Los Angeles.*

Lima stands 100% back of both crane and carrier—no division of responsibility between manufacturers. You can be sure that Lima truck cranes are designed and built, from ground up, for power, mobility and easy travel at highway speeds, yet with strength for heavy lifting jobs under the most difficult operating conditions.

There's a Lima type and size for every job requirement—crawler cranes to 140 tons, 80 tons on rubber; shovels to 8 yd.; draglines variable. Choice of power. Prove to yourself just how good Limas are. See them at work. Talk to their owners. For facts and figures, contact your nearby Lima distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, O.

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Prices 'Soft' on Much Equipment

- **Distributors and dealers are shaving prices, boosting trade-ins, or giving better terms.**
- **Producers are holding line, but some see higher prices before the end of the year.**

Contractors are calling the price and terms tune on new construction equipment. Chances are good they will continue to do so for the rest of 1960.

Those are the key conclusions drawn from an ENR survey of 17 of the major machinery manufacturers and questioning of Associated Equipment Distributors officials.

The producers, however, are trying to ignore the calls. Almost all companies checked say they are fighting hard to keep prices at present levels. Labor costs have exerted upward pressure; only stable materials prices, economies resulting from redesign of equipment and improved manufacturing equipment have permitted the producers to maintain their present price tags.

Even so, earnings reports of many of the producers show a squeeze on profit margins, a slip in sales volume.

Offsetting these pressures for higher prices at the production level are the dealers, who are letting the manufacturers know, in no uncertain terms, that a price boost would be out of order. It is the dealer who is on the front line of pricing economics, and it is he who bears the brunt of a buyer's market.

Business of dealers "is not too good, although there are signs of improvement, which will probably hold for this year," reports an AED spokesman.

Because members of the association have large inventories, they are lowering the price of equipment to contractors either by outright shaving of prices or larger turn-in allowances on used equipment. Some are providing easier financing terms than in the recent past.

A firming of prices is not anticipated. Most distributors indicate that they will resist further attempts by buyers to lower prices, but they also concede that the contractors probably will be tougher to deal with in coming months than they have been.

The contractors will be fighting hard to get even a lower price, and failing in that will be holding out for still easier financing terms.

They should be aided in this effort by the over-all money-market condition. Now on the down side, and presently showing all signs of going still lower, contractors have the odds in their favor. No one expects to see money "dirt cheap," but there is little doubt that the cost of money will dip still further from the highs of January. Any lowering of interest rates to the distributor will be passed through to buyers to a greater or lesser extent, depending on how bad a sale is needed.

The distributor must be as competitive in his business as the contractor is in his. Dealers concede that contractors are slashing bids to the bone and are therefore intent on buying more cheaply and on longer terms. "So the distributor is forced to sell if he intends to stay in business," says the AED spokesman.

This all adds up to stable prices at worst, or still lower prices at best. And even if some manufacturers should step out with a price increase, it may not be felt immediately by the contractor; the distributor may absorb most or all of it.

Eight of the 17 producers checked expect prices to remain the same as they are now for the rest of the year, although one hedged by adding, "They could move up slightly in the next few months."

This midwestern producer of cranes and shovels says its "order situation is good, with business for the full year expected to be about 5% above 1959." This, coupled with the company's optimistic outlook for business next year, would indicate prices will be on the firm side.

But another producer of shovels concedes that it has cut prices—"not across-the-board, but on a deal-to-deal basis. Each sale is considered individually." This company says that future prices will depend on what happens to the price of steel. "This item may up by the end of 1960, and if so, we'll boost the price of our shovels."

Caterpillar Tractor Co. of Peoria reports sales are improving. "There have been no price cuts," says a spokesman. "Prices are expected to remain stable, but we're having a battle to keep them the same. We are concerned about increasing costs changing the price situation."

Only four companies said that prices are expected to go higher in the next few months. A manufacturer of pavers reports sales so far are slightly below 1959, "but we haven't cut prices, in fact, we will probably move them higher in the next few months." This company is looking for a business upturn "as a result of greater confidence in the tempo of contract lettings, road programs becoming less static, and introduction of some new products."

Officials of Gardner-Denver Co., Quincy, Ill., are also optimistic about business, but from the contractor's point of view they have some bad news about prices. A spokesman says the buyer can expect to pay more for his purchase in the next few months.

A West Coast manufacturer of asphalt plants says sales are 25% ahead of the same period last year. "There have been no changes in prices since the beginning of the year, although we feel that prices should be boosted because we have had an increase in our labor costs."

Contractor Sells Bonds To Finance Own Job

A construction company has taken on the job of selling $250 million worth of Venezuelan bonds that will provide the funds to pay for construction of 45,000 houses in that Latin American country.

The company that now wears two hats—those of bond underwriter and contractor—is Berlanti Overseas Corp., wholly owned subsidiary of Berlanti Construction Co., Inc., Harrison, N. Y.

The agreement stipulates the company can sell any amount of bonds, at any time, to any investor, anywhere, at any price. Face amount of interest is 5½%, but if sold by the company at a discount, yield to the buyer will be five points more, i.e.; $1,000 worth of bonds for $950.

Louis Berlanti, company president, says $5 million worth of bonds have already been received from Venezuela, and that "the issue is 99¾% sold to one institutional investor." The money received will provide the capital to start the job. All bonds will be guaranteed by Venezuela.

Big-Volume Engineers at Record

The number of consulting engineers who put $100,000 or more in new design work on their drawing boards in 1959 set a new record.

The total of 1,805 is 16% above 1958 and 8% above the former record set in 1956. (The dollar volume is based on the estimated construction cost of all the consultants' projects reported by ENR and its sister publication, CONSTRUCTION DAILY.)

The gains over 1956 and 1958 reflect the sharp rise last year in new proposed heavy construction—an uptrend that continues steep this year.

The number of $100,000-plus consultants was larger for every type of construction but one—private office buildings.

Most of the increase came among firms designing shopping centers and stores, mass housing, industrial building and public nonresidential building other than offices.

More consultants took on new sewerage and waste disposal engineering assignments in 1959 than they did any other type of work. The number of firms getting sewerage, waterworks and earthwork-dams-waterways was at a record.

More consultants were hired to design airports and missile bases than at any time since the rush to construct military airfields during the Korean War. And the increase last year in the number of firms with new industrial plants was just under the 1956 high—395 last year, compared with 422 in 1956.

Last year also brought an end to the two-year decline in the number of firms doing highway and bridge design. Last year 236 consultants got $100,000 or more in new highway and street design work, and 76 firms attained that volume in bridge design. The tallies in both cases, however, are well below 1956, when 264 consultants had $100,000 or more in highways and another 103 had that amount of bridge design volume.

The number of consultants in the $1-million-plus category rose by 28% to a record total of 895 firms. The number of firms with volume of $500,000 to $1 million showed a 17% increase, to 322 firms.

In the $1-million-and-more category, the number of firms doing shopping centers and stores rocketed 158% above the 1958 count to a total of 67.

The number of consulting engineers doing $1 million or more in industrial building design rose 50% to a total of 240. Those with the same volume of housing design also rose 50%, to 209.

Also up sharply was the number of million-dollar consultants taking on schools and other public nonresidential building. The school building consultants rose 37% to 172, and those doing other public nonresidential building went up 20%.

The number of consultants that got new federal projects rose 20% over 1958 to a total of 126.

Although the number of consultants in the $100,000 to $500,000 new-business bracket edged up only 2%, the total of 588 was a new high. Many firms that had been in this bracket in 1958 probably moved up in class.

In the $100,000 to $500,000 bracket, the rise in the number of consulting firms doing industrial building design offset drops in those doing most other types of building. Waterworks, sewerage and bridges were the mainstays in the other-than-building market.

Without the support provided by these groups, the smallest-volume sector would have shown a relatively sharp drop from the previous year.

Declines ranged from a high of 80% to a low of 1%. Public office building design in the $100,000 to $500,000 group dropped from five in 1958 to one in 1959. (In the $500,000 to $1-million group, the number slumped to zero. However, in the over-$1-million group, the number of consultants doing public office buildings rose 37%.)

Engineers' New Business in 1959—$100,000 or More

	All Consultants Doing $100,000 or more			Consultants With $1,000,000 or more			Consultants With $500,000-$1,000,000			Consultants With $100,000-$500,000		
Type of Work	1959	1958	Change '58-'59 %	1959	1958	Change '58-'59 %	1959	1958	Change '58-'59 %	1959	1958	Change '58-'59 %
TOTAL	1,805	1,553	+16	895	698	+28	322	276	+17	588	579	+ 2
OTHER THAN BUILDING												
Waterworks	400	310	+29	247	166	+49	55	50	+10	98	94	+ 4
Sewerage	592	495	+20	327	238	+37	104	98	+ 6	161	159	+ 1
Bridges	76	63	+21	52	48	+ 8	9	6	+50	15	9	+67
Highways & streets	236	199	+19	136	104	+31	40	32	+25	60	63	− 5
Earthwork & waterways	118	98	+20	83	60	+38	13	7	+86	22	31	−29
Airports	137	124	+10	102	78	+31	13	12	+ 8	22	34	−35
Unclassified	274	261	+ 5	165	145	+14	34	40	−15	75	76	− 1
BUILDING												
Industrial	395	285	+39	240	160	+50	33	40	−17	122	85	+44
Mass housing, commercial and public, total	763	602	+27	526	372	+41	142	102	+39	95	128	−26
Housing	267	182	+47	209	139	+50	40	25	+60	18	18	0
Schools	227	200	+14	172	126	+37	34	32	+ 6	21	42	−50
Offices, private	60	70	−14	46	51	−10	11	13	−15	3	6	−50
Offices, public	27	26	+ 4	26	19	+37	0	2	−100	1	5	−80
Shopping centers, stores	86	41	+110	67	26	+158	12	7	+71	7	8	−13
Public industrial, military & atomic energy	89	83	+ 7	70	54	+30	8	9	−11	11	20	−45
Other buildings, private	159	114	+39	107	78	+37	29	15	+93	23	21	+10
Other buildings, public	96	67	+43	69	54	+28	18	5	+260	9	8	+13
Federal (included above)	156	141	+11	126	105	+20	15	15	0	15	21	−29

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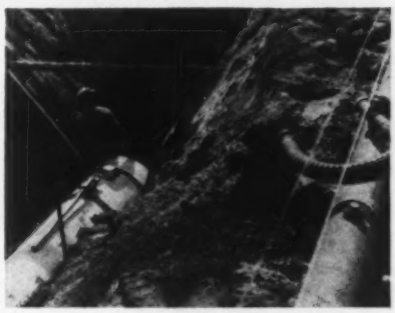

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Long Buffalo Strike Is Settled

- **Seven trades accept three-year, 60-cent contracts that will boost wages 20 cents each year.**
- **But New York City contractors still have trouble selling three-year, 65-cent settlement pattern.**

Negotiation of three-year labor contracts that provide for wage increases of 20 cents a year brought to an end last week a 40-day strike by six AFL-CIO building trades unions representing 20,000 construction workers in Buffalo, N. Y.

A sheet metal workers strike in San Francisco was also settled and a stoppage by San Diego painters was averted. But three trades in New York City remained on strike and were joined by a fourth one, which rejected a tentative offer that would have provided a three-year, 65-cent settlement.

The Buffalo strike marked the defeat of a collective bargaining plan developed by the Construction Industry Employers Association and the building trades unions last February. The plan, which proved too cumbersome to work embraced a progressively accelerated timetable for bargaining and had been hopefully designed to assure conclusion of negotiations well in advance of contract expirations.

Last of the major holdouts in the Buffalo strike and their pre-strike scales were: Cement masons, $3.76; carpenters, $3.93½; bricklayers, $3.91½; iron workers, $3.84; laborers, $2.93½ and plumbers, $3.77½.

The pile drivers, a 200-member local affiliated with the carpenters, was the seventh trade to settle.

Buffalo contractors had hoped to keep the settlements down to a 55-cent package and were willing to go that high to get the three-year stability of long-term contracts. But in addition to raising the ante to 60 cents, they also made a number of concessions that involved other issues.

A show-up clause in the pile drivers contract provides for three hours pay if workers stand by for four hours without being put to work.

The bricklayers won a two-hour show-up clause giving workers two hours pay when they show up and work is suspended for the day. They used to get one hour's pay. Under the new contract union members can take the show-up pay in wages or assign it to welfare or pension accounts.

Iron workers won an increase of three cents a mile in job-to-job travel pay, making it now 10 cents. They also obtained a 10-cent-an-hour hike for double time work to be paid into the welfare fund. The premium now amounts to 20 cents.

The carpenters contract gives job preference to workers with one-year residence in Erie County and calls for examination of job applicants by a joint qualification board.

A grievance clause in the carpenters contract provides for a hearing on a grievance within 24 hours. It sets up a three-step arbitration plan, beginning with on-the-job efforts of the union and contractor association to settle the dispute.

Meanwhile, the San Francisco sheet metal workers returned to work after a 10-day strike. They settled for a two-year contract that grants a wage increase of 25 cents the first year and 21½ cents the second year. Starting the second year, workers will also get two paid holidays, based on a 1% fund that equals four cents an hour.

Down in San Diego, last minute ratification of a new three-year contract by painters Local 333 forestalled a strike by 1,000 union members.

The contract calls for a 79-cent package increase spread over the three years. Old union scale was $3.54.

Elsewhere, New York City contractors reached agreement with four of the five plumbers unions in the greater New York area. But the ornamental iron workers left their jobs and joined the still-striking asbestos workers, sheet metal workers and steamfitters. And Local 2 of the plumbers, which is one of the nine trades working without contracts, is expected to take a strike vote this week.

The plumbers local unions that did settle represent 4,500 journeymen in all the Long Island and New York City areas except the Bronx and Manhattan.

The new three-year, area-wide collective bargaining agreement calls for a package increase of 73.4 cents. The first increase is for 10 cents, retroactive to July 1. Balance of the package may be taken as wages or fringe benefits but no decision had been reached last week on the distribution.

The plumbers pre-settlement scale was $4.55, plus 16% for vacation, welfare and pensions and $2.00 a day for each day worked for a "security plan" which provides payments to union members out of work because of layoffs, injury, sickness or disability.

The strike of ornamental ironworkers occurred after union rejection of a three-year, 65-cent package tentatively agreed to early in the month. Although the union reportedly took exception to a clause that would establish a joint arbitration board for the settlement of grievances, it later claimed that the size of the proposed wage increase was too small to be acceptable.

The proposed three-year, 65-cent package followed the pattern earlier established with seven trades in what is known as the New York City Concrete Alliance.

In those contracts, contractors had made some headway in standardizing holidays, computing fringe benefits on straight time pay and paying wages by check instead of cash. The three-year terms were also considered a significant step toward the stabilization of costs.

In Colorado, members of iron workers Local 24, representing 1,000 workers, settled with the Associated Building Contractors of Colorado for a two-year, 52½-cent contract that raises base pay by 50 cents.

The contract grants an immediate wage boost of 25 cents an hour and adds another 2½ cents an hour to welfare. Another wage increase of five cents an hour goes into effect next October 31, followed by 10 cents more on April 1 and a final 10 cents on October 1, 1961. Union members will then be receiving $4.01 in wages and fringe benefits.

The Colorado contractors did, however, effect some savings in travel pay. Under the new contract, union members will get a flat $3.50 a day travel pay for distances in excess of 15 miles but under 50 miles. The old provision gave workers an hour's pay.

The new travel pay clause also eliminates some confusion over weekend and holiday subsistence pay on jobs more than 50 miles distant. The new contract grants $7.00 per day actually worked, as opposed to the old $5.00 rate that included Saturdays, Sundays and holidays when the men worked over into the following week.

Group Bargaining Has Pitfalls

Employers warn there is no safety in numbers alone and urge hard work, careful planning, firm stand

Collective bargaining has become a highly technical, complicated and demanding business, filled with serious legal and economic consequences for employers who develop fatalistic attitudes or false complacency.

That warning came last week from the National Sand and Gravel Association, which reminded its members that no safety or solace can be found in the mere art of group bargaining. And changes in the law and in union aims, it said, have given particular significance to labor contract clauses relating to such problems as picket lines and boycotts, grievances and arbitration, selection of job applicants, and employer dealings with owner-drivers.

In a quarterly bargaining report sent to his industry members last week, association director Vincent Ahern said:

"The group bargaining technique is valueless simply as a token. Group bargaining itself, unaided by responsible and intelligent management, is no answer to the present requirements for the compulsion to deal with powerful and wealthy labor unions. Industry must look inward for the assessment of the main responsibility for dealing with these difficult union representatives.

"Fatalistic attitudes by our employers will lead to disastrous results. We must prepare ourselves for collective bargaining, we must work out principles in advance of the conferences, and we must be prepared, if there is no alternative, to take a strike . . . and this is said with full recognition of the fact that strikes are bad . . .

"Yet if a union believes that an employer or group of employers will under no circumstances take a strike, our ability to emerge from the collective bargaining ordeal with anything like a decent contract will be lost beyond hope."

Mr. Ahern made a number of specific observations and comments based on contracts negotiated this year by sand, gravel and ready-mixed concrete employers. Among them are these:

• A local union may "blandly ask" employers to sign a hot-cargo clause that is clearly illegal on its face. An example is teamster reservation of the right not to handle goods from an employer that has a labor dispute with the union or to make deliveries to or pickups from establishments where pickets, strikes or lockouts exist. Unless such clauses are removed from the contract, employers may face a charge of deliberate violation of federal law and may expose themselves to civil suits for damages.

• The teamsters are becoming more and more persistent in demands that employers bargain with the union for owner-drivers. This forces employers to face the question of the legality of such demands and a host of complicated tax and insurance problems that revolve around the question of whether the owner-operator is an independent contractor or an employee.

• Loosely drawn arbitration clauses may lead to the arbitration of labor disputes that should not be arbitrated. Protection against recent Supreme Court decisions that enlarge the scope of arbitration (ENR June 30, p. 59) can be found in the use of limiting language.

• There is a growing practice of requiring pre-hire physical examinations. The employer's decision based on pre-employment physicals should be made final and not subject to grievance procedure. Other criteria for the selection of applicants should also be spelled out. Included in the example given is a minimum age requirement (25), checking of all references, a driving test, and a trial-run under actual conditions.

Labor in Brief . . .

• **Shorter workweek**—A resolution calling for a shorter workweek because of automation has been submitted by California carpenters for consideration by the State Building and Construction Trades Council of California when it holds its 40th convention at Long Beach next Wednesday.

• **Vacations**—The Confederation of Swedish Trade Unions has the support of the Swedish Social Democrats in a legislative demand for four-week vacations. Workers are now entitled to three weeks' vacation.

• **Mortgage investments**—Setting the pace for trustees of other welfare funds, the trustees of the Nassau District Council of Carpenters' welfare fund have invested $150,000 in Long Island, N. Y., home mortgages insured by the Federal Housing Administration.

• **Labor reform**—An Oregon legislative interim committee on labor-management relations has been holding hearings on a proposal for a "small Landrum-Griffin" bill. Management spokesmen say they are seeking "something that would improve the climate" of labor-management relations in the state.

• **Right-to-work**—A right-to-work law for New Mexico will be sought again next year by the New Mexico Farm Bureau, according to a bureau spokesman. Such laws ban the union shop. They are now in effect in 19 states.

• **Inflationary settlements**—The management of General Electric Corp., which will soon be bargaining with over a hundred unions, says post-war "pattern bargaining" has been "too fashionable" for the good of anyone. It claims the result has been "inflationary settlements" for which a previously apathetic public will no longer foot the bill and which means loss of business for employers and loss of jobs for workers.

• **Safety by contract**—Unions in western New York State have called for the use of collective bargaining as a device for promoting safety. In a resolution adopted at a safety meeting in Buffalo, they said labor contracts should contain clauses that fix the employer's responsibility to provide safe working conditions.

• **Minimum wage**—As a result of petitions filed by the State AFL-CIO, Arkansas voters will find on their November ballots an initiated minimum wage and overtime proposal that would establish a $1 minimum wage and 40-hour workweek within two years and 60 days from the measure's approval.

• **Highway safety**—Highway contractors in Pennsylvania are now subject to new warning and safety standards for the protection of workers and motorists. The standards, contained in the Department of Highways' Bulletin 43, will supplement highway specifications and become a factor in bidding.

Construction Employment Down

The labor market has become more glutted than usual for this time of year.

Although construction employment rose by 139,000 to 2,977,000 in June, the industry's total employment was down 33,000 from a year ago. The figures exclude Alaska and Hawaii.

This was part of the high-unemployment, high-employment picture presented by the U.S. Labor Department last week.

Total unemployment in June rose to 4.4 million, well above seasonal expectations. The seasonally adjusted rate of unemployment moved up to 5.5%. The unemployment rate in the construction industry was a lot higher—8%—despite the improvement in employment.

Total employment, however, rose by 1.4 million to a new all-time record of 68.6 million.

The simultaneous increase of employment and unemployment was attributed to a large influx of school graduates into the labor force and to the economy's ability to absorb some but not all of them.

The June stateside employment figure of 2,977,000 for the construction industry was not only lower than last year's, but it was also the lowest for any June since 1955, except for the recession year of 1958.

The department's unemployment figures do not include workers on strike. But the employment figures are affected by strike activity because they are based on payroll reports.

Long-term unemployment (15 or more weeks of idleness) decreased over the month to 800,000, but an estimated 135,000 jobless workers exhausted their state unemployment insurance benefits.

Although the factory workweek rose to 40.0 hours in June, the increase was less than normal. Every major group in the durable goods sector of the economy and most of those in nondurables reported a shorter workweek than a year ago.

Weekly earnings of factory production workers rose to $91.60 and hourly earnings remained unchanged at $2.29.

Fewer Strikes in Construction

Strike idleness in the nation's industries in 1959 reached its highest level since the post-war readjustment year of 1946, according to the U.S. Labor Department.

Although the number of stoppages was about the same as in 1957 and 1958, the number of man-days of idleness tripled to nearly 69 million. This was due largely to the steel strike, which lasted 116 days, involved 519,000 workers and caused 42 million man-days of idleness.

The construction industry, however, showed a drop from 1958 in the number of strikes, workers involved and man-days idle (see table).

It had 771 strikes that involved six or more workers and lasted a day or more. These strikes accounted for one-fifth of all strikes in all industries. Four of the strikes were major ones, involving 10,000 or more workers. They occurred in Seattle and western Washington, southern Illinois, the Washington, D. C. area, and Arizona.

More than half the nation's 1959 idleness took place in the primary metal industries, and almost all of that in steel and copper.

Wages, hours and supplementary benefits were the major causes of 1959 disputes. The department says they accounted for half the strikes.

Three issues—wage increases, pensions and social insurance—caused 90% of the 1958-59 increase in idleness.

New York chalked up the largest number of strikes. Pennsylvania had the highest amount of idleness.

The strike record in and out of construction

	Number of Stoppages	Workers Involved	Man-Days Idle
In construction			
1959	771	251,000	4,120,000
1958	844	326,000	4,790,000
In all industries			
1959	3,694	2,060,000	23,900,000
1958	3,708	1,880,000	69,000,000

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OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: August 11, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 11th day of August, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name
DISTRICT No. 10, Austin M. Sarr, District Engineer, 325 W. Main Street, Babylon, L. I., New York		
BRONX (Int. Trg. Rte. 95)	FIBETS 60-2	Interstate Route Connection 511 Brucker Expressway (Layton Ave. to New England Thruway) Section 2, Contract 2 including Throgs Neck Expressway Connection Project I-95-1(41)
Bronx (Int. Trg. Rte. 78)	FICBETS 60-3 FITNETS 60-1	Interstate Route Connection 513, Contract 4 Cross Bronx Expressway, S.H. FICBE 59-2P (Graff Avenue to Throgs Neck Blvd.) Throgs Neck Expressway, S.H. FITNE 59-1P (Layton Ave. to Longstreet Ave.) Project I-78-1(50)
Queens (Int. Trg. Rte. 78)	FICETS 60-1	Interstate Route Connection 513, Contract CE-4 Clearview Expressway, S.H. FICE 58-3, FICE 59-1, FICE 59-2, 73rd Avenue to Willets Point Boulevard and Horace Harding Expressway Connection, S.H. FIHHE 58-2 Project I-78-1(51); I-495-1(42)

Miles	Type	Deposit	Estimated Cost of Work
1.73 (5.40 Acc.)	Traffic Signs and Delineators	$7,500 Plans $5	$137,000
2.84	Traffic Signs	$5,500 Plans $5	$98,000
4.78 (11.39 Acc.)	Traffic Signs and Delineators	$16,000 Plans $5	$288,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: August 8, 1960

Sewage Treatment Plant

NOTICE TO BIDDERS
CITY OF SHERRILL, NEW YORK

Sealed proposals for construction of a Sewage Treatment Plant for the City of Sherrill, New York, will be received by the Clerk of the City Commission of the City of Sherrill, New York, at his office in the City Hall until 7:30 P.M. on August 8, 1960, and then will be publicly opened and read aloud.

Separate sealed proposals will be received for the following:

Contract No. 1—"General Construction"
Contract No. 2—"Heating and Ventilating"
Contract No. 3—"Plumbing"
Contract No. 4—"Electrical"

The Sewage Treatment Plant is to be located on the south side of West Hamilton Avenue, adjacent to Oneida Creek and the existing outfall sewer. Construction of the Plant will include all treatment units, buildings, equipment, utilities, walks, drives, access roads, grading, landscaping, fencing, manholes, relocation of a portion of the outfall sewer, and everything required as set forth in the Contract Documents.

Information for Bidders, Plans and Specifications may be examined at the office of the City Clerk, City Hall, Sherrill, New York, or at the office of Stearns & Wheler, Civil and Sanitary Engineers, 99 Albany Street, Cazenovia, New York. Copies thereof may be obtained at the office of Stearns & Wheler upon deposit of $30.00 for each set (each set covers all four Contracts), to be held as security for their return pursuant to law. Any bidder, upon returning such set in good condition within fifteen (15) days after receipt of bids, will be refunded his full deposit and any non-bidder, upon so returning such set, will be refunded $15.00.

For the convenience of prospective bidders, subcontractors and material men, plans and specifications will also be placed on file at the F. W. Dodge Corp. and Syracuse Builders Exchange, 1054 James Street, Syracuse, New York.

Each proposal must be accompanied by the deposit of cash, bank draft or certified check payable to the City of Sherrill, New York, in the amount of five (5%) per cent of the total Contract price. Bid bonds are not acceptable.

Upon acceptance of his bid, if the successful bidder fails to enter into a Contract with the City of Sherrill, New York, then the monies represented by such cash, draft or certified check shall be regarded as liquidated damages and shall be forfeited and become the property of the City of Sherrill.

The City of Sherrill reserves the right to waive any informalities in or to reject all bids.

Peter G. Noto
City Clerk
City of Sherrill, New York

Dated: July 12, 1960

Bids: August 9, 1960

Delaware Memorial Bridge Repainting Steelwork

DELAWARE INTERSTATE HIGHWAY DIVISION
CONTRACT NO. 41
NOTICE TO BIDDERS

Sealed proposals for repainting steelwork on the portion of the Delaware Memorial Bridge from the east abutment to the east tower, exclusive of the tower, cables and suspenders, at Deepwater Point, New Jersey, will be received by the Delaware Interstate Highway Division at the Administration Building, Delaware Memorial Bridge, near Wilmington, Delaware, until 11:00 A.M. Eastern Daylight Saving Time, on August, 1960, at which time and place said proposals will be opened and read.

Repainting shall consist of cleaning metal surfaces, spot-priming where necessary, and applying one (1) finish coat of paint to all exposed metalwork.

The approximate weight of steelwork to be painted is 9,040 tons.

Work on this project shall begin within ten (10) days after the execution of the Contract and shall be completed on or before December 1, 1960.

Monthly payments will be made for ninety (90) per cent of the work completed each month.

Bidders must submit proposals upon forms provided by the Division.

Each proposal must be accompanied by an acceptable surety bond, certified check or cash in the amount of at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the contract documents may be obtained from the Delaware Interstate Highway Division at the Administration Building, Delaware Memorial Bridge near Wilmington, Delaware, after July 19, 1960, upon payment of $10.00. Contract documents need not be returned and the above payment will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Delaware Interstate Highway Division
By: J. H. Tyler McConnell, Director
Richard A. Haber, Chief Engineer
Delaware Interstate Highway Division
July 19, 1960

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5368) will be received at St. Paul, Nebraska, until 10 a.m., Central Standard Time, August 25, 1960, for furnishing labor and materials for earthwork and structures, Sherman Feeder Canal, Station 24+00 to Station 656+48, Farwell Unit, Nebraska, Middle Loup Division, Missouri River Basin Project. Location near Arcadia, Nebraska. Principal items are 3,312,000 cu. yds. excavation; 326,000 cu. yds. placing and compacting earth lining; 7,020 cu. yds. of concrete; 3,200 lin. ft. furnishing and laying 24- to 48-inch concrete pressure pipe; and other work. Completion time 800 days. For particulars, address Bureau of Reclamation, Building 46, Denver Federal Center, Denver 25, Colorado; P. O. Box 143, St. Paul, Nebraska; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

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OFFICIAL PROPOSALS

Bids: July 28, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 28th day of JULY 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany, New York						
Essex Rte. 73	R.C. 60-132	Lake Placid-Cascade Lakes, Pt. 2, S.H. 8390 Cascade Lakes-Keene, S.H. 8274	10.97	Asphalt Concrete	$23,000 Plans $5	$416,000
Saratoga & Warren Int. T. Rte. 87	FITS 60-11	Interstate Rte. 502 (Route 9 to Hudson River) S.H. FISH 58-19; Interstate Rte. 502 (Hudson River to Gurney Lane) S.H. FISH 59-9 Project No. I-87-3(34)	9.70	Traffic Signs	$2,100 Plans $5	39,000
DISTRICT No. 2, LACY KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Fulton & Hamilton Rte. 30	R.C. 60-128	Northville-Chapmans Corners S.H. 362; Northville Village-North, S.H. 5065; County Line-Hope Center, S.H. 5038	4.32	Asphalt Concrete, Type 1A	$9,500 Plans $5	168,000
DISTRICT No. 3 EARL E. TOWLSON, District Engineer, 333 E. Washington Street, Syracuse, New York						
Cayuga Rte. 34	FAC 60-5	City of Auburn; North Street Arterial Highway (Seymour St. to North City Line) Project No. U-1114(4)	1.19	Asphalt Concrete Type 2A=1.16 M.; Misc. Work=0.03 Mi.	$30,000 Plans $5	546,000
Oswego Rte. 104	FARC 60-105 FAC 60-8	Oswego-Sterling, S.H. 280; City of Oswego, East-West Art. Highway (West Seneca St. & West Bridge St.) Project No. U-346(9)	1.58	Asphalt Conc.=1.31 Mi. Misc. Work=0.27 Mi.	$46,000 Plans $5	846,000
Seneca Rtes. 5, 20, 96A	FARC 60-127	Geneva-Macdougall, S.H. 8183; Geneva-Waterloo, S.H. 5087; Geneva-Waterloo, Pts. 2 & 3, S.H. 8240 Project No. F-452(8); U-452(8); U-406(5); UG-452(8)	2.69 (0.63 Acc.)	9" Cem. Conc. Pavt.=2.96 Mi; Asph. Conc. Ty. 1A=0.36 Mi.; 1 Br. I-Beam 3 Sp. 291'; 1 Hgs I-Beam 2 Sp. 175.5'	$109,000 Plans $5	1,971,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe	FITC 60-6	Interstate Rte. Conn. 580, S.H. FIC 58-2; Rochester City Eastern Expressway Pts. 2 & 3 Project No. I-490-2(18)	1.23	Traffic Signals	$3,500 Plans $5	60,000
Monroe Rte. 250	FARC 60-103	Mosley Road, S.H. 1836 Hannan Corners-Fairport S.H. 1290 Project No. S-684(2)	3.90	Asphalt Concrete	$13,000 Plans $5	227,000
Monroe	M 60-6	Bridge E-176 Websters, near Spencerport; Bridge E-177 Cresys in Adam's Basin	.....	Cleaning & Painting 2 Bridges over Erie Canal	$300 Plans $5	5,400
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie Rte. 5	FAC 60-10 FAC 60-11	City of Lackswanna: Hamburg Turnpike Art. Highway (Ridge Rd.-North City Line); City of Buffalo: Fuhrmann Blvd. Art. Highway (So. City Line-Tifft St.) Project No. U-750(20)	0.66	Asphalt Conc. Ty. 2A=0.49 Mi. Cement Conc. Pavt.=0.11 Mi. Misc. Work=0.06 Mi.	$15,000 Plans $5	273,000
Erie Rte. 5	FATC 60-5	Main St. Pt. 1, S.H. 69; Williamsville Village, S.H. 5061; Main St. Pt. 2, S.H. 87 Project F-933(7)	1.41	Traffic Signals	$3,000 Plans $5	52,000
DISTRICT No. 6, WILLIAM J. DENNIS, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Steuben Rtes. 15 & 17	FATS 60-10	Painted Post-West City Line at Corning, Pt. 1, S.H. FASH 59-10; Painted Post-West City Line at Corning, Pt. 2, S.H. FASH 57-11; Corning-Painted Post, S.H. 5026; Corning City-West City Line, Chestnut St.; S.H. FAC 57-5 Project No. U-225(18); U-593(14)	3.76	Traffic Signs and Delineators	$2,600 Plans $5	48,000
Steuben Rte. 21	FARC 60-109	Hornell-Wayland, Pt. 2, S.H. 9029 Hornell-Wayland, Pt. 3, S.H. 8194 Project F-375(9)	1.30	Asphalt Concrete	$22,000 Plans $5	389,000
DISTRICT No. 7, ROBERT W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
St. Lawrence, U.S. Granville, Ont., Can.	O.B.A. 60-7	Ogdensburg Bridge Canadian and U.S. Approaches	2.40	Traffic Signs	$600 Plans $5	11,000
DISTRICT No. 8, KURT G. RAUER, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Columbia	T.S.P. 60-2	Taconic State Parkway (Rte. 203-N.Y.S. Thruway, Berkshire Sec.) Town Road (Chatham-Red Rock); County Road No. 24; Town Road (Hartigans Road); Chatham-East Chatham, S.H. 1933; Town Road (Chatham Center-East Chatham)	4.26 (5.25 Acc.)	Grad. & Drain.=6.52 Mi.; Asph. Conc.=0.64 Mi.; Top Crse, Graded Gravel=2.35 Mi.; 3 H.G.S. & 1 R.R. Bridge Comp. I-Beam, 3 SP. 187.4'; 3 SP. 119'; 4 SP. 264.5'; 3 SP. 245'	$150,000 Plans $10	2,780,000
Dutchess Rtes. 22 & 55	FARC 60-110	Billings-Poughquag, S.H. 8525; Stonehouse-Stormville, S.H. 1162; Stonehouse-Pawling, S.H. 1677; Pawling-Patterson, S.H. 343; Pawling Village, S.H. 5009 Project No. F-102S(3); F-625(5); and F-FG-625(5); F-350(23)	(0.57 Acc.)	Asph. Conc.=7.63 Mi.; Cem. Conc. Pavt.=1.17 Mi.; ridge-Reinf. Conc. Box 20.8' Span; RRGS-NYCRR-Prestressed Beam—3 Spans 139.4'; HGS Comp I-Beam—4 Spans—200.2'	$230,000 Plans $5	4,149,000
Orange & Rockland	PIP 60-1	Palisades Interstate Parkway (New Jersey State Line to Bear Mountain Bridge Circle)	25.94	Roadside Development Including 1.41 Mi. Asph. Concrete Pavement	$28,000 Plans $5	507,000
Ulster Rte. 9W	FARC 60-108	Saugerties Village, S.H. 5601 Saugerties-Kingston, S.H. 228 Project No. S-207(2); F-361(7)	2.37	Asphalt Concrete	$12,000 Plans $5	210,000
Westchester Rte. 9	FARC 60-39	Croton-on-Hudson Vill: Riverside Ave., S.H. 1207; Croton River-Peekskill, S.H. 657 Project No. U-358(11)	2.74	Demolition of Bldgs.	$11,000 Plans $5	206,000
DISTRICT No. 9, JOSEPH C. FREDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome Rtes. 17 & 41	FARC 60-121	Windsor-Deposit, S.H. 5338 Bettsburg-McClure, Pt. 2, S.H. 8285 Project No. F-344(27)	8.42 (2.98 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var.=8.26 Mi.; Bit. D.S. Treat. Pavt.=3.09 Mi.; 2 Brs. Comp. I-Beam, 2 Sp. 125.8'; 2 Sp. 125.8' 5 H.G.S. Comp. I-Beam, 3 Sp., 136.9', 3 Sp. 134.3', 5 Sp. 356.6', 5 Sp. 356.2', 4 Sp. 239.9'	$475,000 Plans $10	8,482,000
Delaware Rte. 206	FATS 60-12	Walton-Downsville, Pt. 1, S.H. 8515 Walton-Downsville, Pt. 2, FASSH 48-18 Project No. S-44(7)	6.77	Traffic Signs	$220 Plans $5	4,000
DISTRICT No. 10, AUSTIN M. SARR, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Richmond Int. Tr. Rte. 278	FICLE 60-1	Clove Lakes Expressway, Cont. 1 Interstate Rte. Conn. 512 (Goethals Br. Approach to Victory Boulevard) Project No. I-278-1(49)	2.38 (10.12 Acc.)	9" Cem. Conc. Pavt. with Carb. Black 2 @ 24' & 38' Var. Wide=2.10 Mi.; Misc. Work=0.28 Mi.; Acc. Rds. Cem. Conc. Pavt.=4.86 Mi.; Asph. Conc. Pavt.=5.26 Mi.; Incl. 2 RRGS Pl. Girds. 50.5', 49.9'; 9 H.G.S. 7 Rolled Girder, 3 Sp. 133'; 4 Sp. 269.3'; 4 Sp. 285.4'; Twin, 3 Sp. 143.5'; Twin, 3 Sp. 101.6'; Twin, 4 Sp. 199.8'; 4 Sp. 190.9'; 2 Pl. Gird., 1 Sp. 114.9', 1 Sp. 100.9'	$800,000 Plans $10	14,295,000
Suffolk	HSP 60-1	Heckscher State Parkway Cont. 2 (Southern State Parkway to Sunrise Highway)	5.44 (13.94 Acc.)	Grading & Drainage=7.61 Mi.; Asph. Conc.=11.77 Mi.; 5 H.G.S. Rein. Conc. Rig. Fr., 2 Sp. 126.4'; 2 Sp. 145.78'; 2 Sp. 121.78'; 2 Sp. 148.82'; 2 Sp. 120.58'; 2 H.G.S. Comp. Gird. 2 Sp. 140.94'; 2 Sp. 153.98'	$305,000 Plans $10	5,555,00

(Continued on following page)

OFFICIAL PROPOSALS

(*Continued from preceding page*)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and tothe special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

State of New Jersey
Department of Conservation and Economic Development

DIVISION OF WATER POLICY AND SUPPLY
BUREAU OF DESIGN AND CONSTRUCTION
TRENTON, N. J.

NOTICE: PREQUALIFICATION FORMS FOR CONTRACTORS

NOTICE IS HEREBY GIVEN THAT

Starting August 1, 1960, the Bureau of Design and Construction will receive application for prequalifications from contractors who may wish to submit bids for proposed hereinafter specified contracts and related work, in connection with the Spruce Run-Round Valley reservoir project as follows:

Contract SR-1, Spruce Run Dam, dikes, spillway and appurtenant structures.

Contract RV-1, Round Valley south dam, tunnel and appurtenant structures.

Contract RV-2, Round Valley north dam, dike and appurtenant structures.

Grouting under Contract SR-1 of cavernous and jointed lime stone foundations.

Grouting under Contracts RV-1 and RV-2 of rock foundations under dams and dike.

Drilling and core boring sampling in connection with grouting operations under contracts above.

In addition, contractors who may wish to submit bids for the two following contracts, to be advertised for bids by the Department of Conservation and Economic Development, must be qualified by prequalification with the State of New Jersey Highway Department:

Contract SR-2, Bridge and culverts for Spruce Run relocated road, classes B to Z, "General Construction" or "Bridge Construction."

Contract RV-3, Round Valley relocated road, classes K to Z, "Paving" or "General Construction."

Prequalification questionnaires for a particular contract will be received up to twenty (20) days preceding the final day for the submission of bids for the contract.

Bids when advertised, will be accepted from prequalified bidders only.

Bureau of Design and Construction
219 West State Street
Trenton, New Jersey

OFFICIAL PROPOSALS

Bids: August 9, 1960

Port Newark
Berths 34, 36 & 65
Dredging

THE PORT OF NEW YORK AUTHORITY
CONTRACT PN-630.004

Sealed proposals for dredging to remove unsuitable material from the site of Berths 34, 36 & 65 at Port Newark will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M., on Tuesday, August 9, 1960, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, July 21, 1960

Bids: August 15, 1960

Electric Distribution System

Manufacturers and suppliers wishing to participate in bidding on the supply of approximately $4,500,000 worth of municipal electric distribution system materials and equipment such as wood poles, electrical conductors, insulators, transformers, watthour meters, hardware and related accessories, for delivery at the port of Khorramshahr, Iran, are requested to submit particulars as to their qualifications and complete technical information, including catalogs and specifications covering the materials they would be prepared to supply, to Khuzestan Development Service, Attn: Supply Officer, P. O. Box 14, Ahwaz, Iran. Qualification statements and supporting materials will be received up to August 15, 1960. The manufacturers and suppliers invited to bid will be selected from the firms qualified under the above procedure.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5366) will be received at Lewiston, California, until 1 p.m., Pacific Standard Time (2 p.m. Pacific Daylight Savings Time), August 18, 1960, for furnishing labor and materials for Earthwork, structures and surfacing, relocation of Trinity County Road, Carrville to Cedar Creek, Trinity River Division, California, Central Valley Project. Location 55 miles northwest of Redding, California, in Trinity County. Principal items are 666,000 cu. yds. excavation; 1,310 cu. yds. concrete; 280,000 pounds structural steel for Trinity River Bridge; and other work. Completion time 420 days. For particulars, address Bureau of Reclamation, P. O. Box 247, Lewiston, California; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5367) will be received at Paonia, Colorado, until 10 a.m., Mountain Standard Time, August 30, 1960, for furnishing labor and materials for Crawford Dam, Smith Fork Participating Project, Colorado River Storage Project, Colorado. Location near Crawford, Colorado, in Delta County. Principal items are 1,011,000 cu. yds. excavation; 955,000 cu. yds. embankment; 5,900 cu. yds. concrete; and other work. Completion time 800 days. For particulars, address Bureau of Reclamation, P. O. Box 360, Salt Lake City, Utah; P. O. Box 346, Paonia, Colorado; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

OFFICIAL PROPOSALS

Bids: August 4, 1960

Underground Gasoline & Diesel Fuel System

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
BUILDING NO. 141
CONTRACT O & M—594

Sealed proposals for constructing an underground gasoline and diesel fuel system for Building No. 141 at New York International Airport will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, New York, until 11:00 A.M. o'clock Thursday, August 4, 1960, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Admintrative Services, which will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of Proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, July 21, 1960

Bids: August 1, 1960

Board of Education—
Bureau of Construction
Notice Re: Prequalification Forms for Contractors

APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT The Superintendent of Design, Construction and Physical Plant, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts. General Construction, Plumbing and Drainage, Heating and Ventilating, Electrical Work and Lighting Fixtures.

Bushwick High School. Recreation Center (Add.) Woodbine Avenue and Irving Streets. Borough of Brooklyn, New York City.

The prequalification application form must be secured at the Bureau of Construction, Room 407, 42-15 Crescent Street, Long Island City 1, N. Y. and submitted to the Superintendent of Design, Construction, and Physical Plant at the same above address. Bids when advertised, will be received only from prequalified bidders.

The time for submitting prequalification applications by contractors *will expire on Monday, August 1st*, 1960.

JOSEPH R. WEISS
Superintendent of Design, Construction and Physical Plant.
Starting: Monday, July 18, 1960
Five (5)

Dated: July 14, 1960.
JJF:dem

Contractors Watch This Section—

for new projects.

Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

EMPLOYMENT OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

AUGUST 4TH ISSUE CLOSES JULY 25TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Assistant or Associate Professor of Civil Engineering to teach prestressed concrete, reinforced concrete and soil mechanics. Applicant must have MS degree and some experience. Salary open. Contact John A. Oakey, N. D. State College, Fargo, N. D.

Assistant City Engineer—Age, under 50— Civil Engineer—College Degree—two (2) years' experience. Knowledge of street and sewer design and other Municipal functions. Knowledge of operation of Sewage Treatment Plant and Filtration Plant desirable. Write City Clerk, City Hall, Cumberland, Maryland.

Construction Estimator-Progressive and expanding regional General Contractor with offices in Baltimore has outstanding opportunity for competent estimator. Reply with complete resume. P-4799, Engineering News-Record.

Civil Engineer—experienced in hydraulics, hydroelectric, irrigation design and field work. Overseas assignment in Portuguese West Africa. Send full resume and salary requirements to P-4800, Engineering News-Record.

Flood Control Engineer: A registered professional engineer between age of 30 to 45 years with experience in hydrology and hydraulics. Starting salary $10,000.00 per year with car furnished. Applicant should have ability to take over complete charge of office. Apply with complete resume of experience and qualifications to Board of Flood Control Commissioners, City Hall, Indianapolis 4, Indiana.

Specifications Writer. Permanent position available immediately with established Midwestern consulting firm. Architectural degree preferred. Moving expenses paid. 3-week vacation. Salary commensurate with ability. Write P-4694, Engineering News-Record.

Position is open as assistant to President of heavy engineering construction firm in the West. Give experience, education, references and salary expected. P-4822, Engineering News-Record.

Field Supervisor. Large established midwest consulting firm has permanent position in building construction supervision for thoroughly qualified and experienced man. Mechanical engineer preferred. Moving expenses paid. Send complete resume to P-4833, Engineering News-Record.

Foreman and Superintendent for Highway and Airfield construction. Work is located in Kentucky, Alabama and Mississippi. Send complete resume and date available. P-4764, Engineering News-Record.

Assistant or Associate Professor of Sanitary Engineering, with experience in design of water and sewage treatment plants, water and sanitary sewer systems, pumping stations, and industrial waste treatment. Should have M.S., Ph. D. desired. Salary open. Well-known eastern university. P-4769, Engineering News-Record.

DON'T FORGET

the box number when answering advertisements. It is the only way we can identify the advertiser to whom you are writing.

Structural Engineer

With minimum of 10 years experience, to be in charge of structural and architectural design for multi-building process and industrial projects. Must be able to design, coordinate, and supervise these requirements in consulting engineers office. Location, Boston. Send complete details of education and experience, together with references.

P-4754, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N.Y. 36, N.Y.

• POSITIONS VACANT

Writer-editor for house organ in water works field. Engineering background will be helpful. NYC location. Salary $12,000. P-4856, Engineering News-Record.

Concrete Technology Engineer. Interesting and challenging growth position with national organization. Opportunity to participate in the development and dissemination of engineering data in the field of quality concrete as applied to structures. Work includes technical writing, consultation and lecturing before professional groups. Small amount of traveling. Degree in civil engineering required. Qualifications should include theoretical and practical experience with conventional and lightweight mix designs and construction practices. Experience in field inspection and quality control of concrete is desirable. Excellent working conditions, insurance benefits and pension plan. Salary commensurate with experience and ability. Age 30 to 40. Location, Chicago. Submit complete outline of background and experience. P-4874, Engineering News-Record.

Yard Superintendent, precast concrete, northeastern U. S. Concrete finishing, steel placement and carpentry experience requisite. Must be aggressive. Send full resume and salary. P-4864, Engineering News-Record.

Superintendent: Permanent position in Central Illinois Firm. Must know carpentry, masonry and concrete for small to middle sized general construction work. Should be aggressive and preferably have trade ability. Salary open. P-4855, Engineering News-Record.

Civil Engineer (Design) Dept. of Public Works seeks civil engineers with design experience. Salary $6410 to $7760. Requires one year of experience involving the design and computation of bridges, grade separations and other equivalent structures or in aeronautical design and five additional years of pertinent education and/or experience. New York State residence is not required. For detailed information and applications write to Recruitment Unit, Dept. Civil Service, Box 41, The State Campus, Albany 1, New York.

(Continued on following page)

ENGINEERS

OVERSEAS OPPORTUNITY

24 Month Contract on a Transmission Line in Thailand

Position open to qualified Engineer with B. S. in Electrical or Civil Engineering. Must have had experience as supervising inspector on the erection of steel transmission line towers, stringing and sagging of conductor and shielding wire.

Age 30—50 preferred. Must pass physical examination and security investigation.

- Overseas Bonus
- Scheduled Overtime
- Completion Incentive
- Extra Vacation Allowance
- Medical Care and Insurance
- First Class Air Travel

Please write fully, include complete salary data to:

SVERDRUP & PARCEL ENGINEERING COMPANY

915 Olive St., St. Louis 1, Missouri

WANTED

BUSINESS PARTNER as EXECUTIVE Vice-President and General Manager

Consulting Engineering and General Contracting Group

World Wide Contacts
Foreign and Domestic Projects

Sales experience Essential

Minimum investment $50,000.00

Annual income should equal investment
Send complete resume first letter

P-4350—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

SALES ENGINEERS

Importing house selling competitively priced ASBESTOS-CEMENT PIPE seeks salesmen experienced in the line.

SW-4821, Engineering News-Record
Class. Ad. Div., P.O. Box 12, N.Y. 36, N.Y.

POSITIONS VACANT
(Continued from preceding page)

Contract Engineer—Large steel plate fabricator in the Calumet Area has an opening for a Senior Contract Engineer experience in contract negotiations of Engineering products in heavy industry. Must be graduate engineer with at least two to 5 years experience in the steel industry, preferably steel plate. P-4867, Engineering News-Record.

Senior Estimator experienced in estimating material, shop and field labor, as well as all other items of cost pertaining to estimating. Must have at least two years of college engineering work including courses in trigonometry, descriptive geometry, mechanical drawing and blue print reading and at least two to five years experience in the steel business, preferably steel plate fabrication. P-4871, Engineering News-Record.

• POSITIONS WANTED

Technical executive, young, graduate licensed engineer, fourteen years diverse domestic and overseas experience. Presently affiliated major oil company, refining mid-management position, desires change with advanced opportunity, overseas positions considered. PW-4696, Engineering News-Record.

Engineer—20 yrs. exp. design/drafting/est. conc. & steel structures, buildings, & fndtns. Will also consider P.T. or free lance N. Y.-N. J. area. PW-4695, Engineering News-Record.

Engineering Executive. Wide industrial, chemical and civil experience; all phases administration and management. Organize and direct large design jobs or work in consulting and exec. asst. capacities. Proposals, reports, contracts, liaison, trouble shooting. P.E. in 5 States. PW-4725, Engineering News-Record.

Senior Estimator and Project Manager, age 33, available in August. College grad, career minded, good construction background. Desire permanent opportunity with established General Contractor engaged in commercial or heavy industrial activity. Prefer South or S.W. PW-4826, Engineering News-Record.

Experienced Construction Project Eng.- Project mgr.—Age 37—Reg. P. E.—Pulp-Paper & Converting experience—Desire connection with Paper Co. or Contractor. PW-4824, Engineering News-Record.

Construction Supt. General Construction. PW-4482, Engineering News-Record.

Construction superintendent considerable experience in industrial and commercial work. PW-4494, Engineering News-Record.

Chief Estimator—Sewage and Water Treatment Plants. Industrial, Commercial, and Architectural Buildings—fifteen years one employer—will relocate to suit. Available immediately. PW-4792, Eng. News-Record.

Registered Architect With Construction Experience here and in Mexico wishes to associate with an American firm to manufacture construction equipment or building materials in Mexico. Will furnish some capital and tools. Will need capital or used tools plus technical assistance. PW-4795, Eng. News-Record.

Hydraulic Dredge Executive Civil Engineer Available. Over 20 years thorough experience in field investigation, cost estimates, management, consulting, full time or project basis. PW-4796, Engineering News-Record.

Construction Superintendent—Wide experience in industrial, institutional, and commercial field as job and general supt. Proven producer. PW-4774, Engineering News-Record.

Experienced blasting foreman with license any type rock immediately available $150.00 weekly. PW-4776, Engineering News-Record.

Superintendent-Estimator-Engineer, C.E. P.E. L.S. (NJ) experienced public works, utilities, bridges, paving, desires position general contractor - (N.J.) PW-4773, Engineering News-Record.

Highway construction superintendent capable complete charge, 20 years experience excavation, grading, estimating experience. Willing relocate. PW-4771, Engineering News-Record.

POSITIONS WANTED

Man 46 married Master in Civil Eng. Professional engineer Md. State. 10 years highway, bridges and structural design. Past 2 years instructor (evening). Desire full-time teaching position in highway construction and surveying. Location desired N.Y. to Md. area. PW-4802, Engineering News-Record.

Civil Engineer-M.B.A.-26, 4 years experience, structural design, estimating, supervision. Desires career opportunity to fully utilize engineering and business training. PW-4866, Engineering News-Record.

Graduate C. E.—Super.—Field Engr. 5 Years Constr. supervision on major projects. Available immediately. PW-4837, Engineering News-Record.

Structural Designer, Civil Engineer (Reg. Calif.) 31. Six years design with supervision-commercial, heavy. Seeks responsible position. West or foreign. PW-4875, Engineering News-Record.

Wanted position. Reinforcing detailer 4 yrs. experience in detailing & estimating. PW-4861, Engineering News-Record.

Project Manager, BSCE, reg. in Ohio. 16 years experience in general and heavy construction. Available and will relocate. PW-4878, Engineering News-Record.

Construction Executive: Licensed Professional Engineer; knowledge of government and private contracts; 22 years experience in all phases of construction; buildings, sewage treatment plants, tunnels and dams, jobs management, cost control, purchasing, subcontracting, and processing of government claims. PW-4863, Engineering News-Record.

Surveyor. Thoro experience. Exc. Ref. All phases survey, layout, topo & calculations. Operate plane-tables & theodolites. Prefer relocate West or South as field engineer or chief of survey. Reply PW-4879, Engineering News-Record.

C.E. European diploma pre-stress precast reinforced concrete design 15 yrs experience leading firms large projects, will relocate. PW-4844, Engineering News-Record.

Controller-Accountant with 24 years experience in heavy construction available immediately. Capable of managing complete business office for large contractor. Prefer job with growth potential. PW-4838, Engineering News-Record.

Ambitious, married, 30 year old engineer (MSCE) desires position with unlimited potential. Background in str. design, construction, sales, promotion. Hard worker, excellent speaker, good business head. Position with industrial developer or similar capacity desirable. Write PW-4845, Engineering News-Record.

Overseas Position Desired By Arch-Engr, Reg, 10 yrs exp, 4 yrs abroad in admin, production, coord. of U. S. Mil. design contracts. Familiar all aspects overseas living. Married, child, 35, now abroad. Avail. early fall. PW-4848, Engineering News-Record.

Structural Engineer. M.S.—26—3 yrs. design exp. (buildings/bridges). Teaching and Research exp. Desire to relocate in West. PW-4849, Engineering News-Record.

Equipment Superintendent: a qualified supervisor of repair and preventive maintenance of all earth moving and paving equipment. PW-4859, Engineering News-Record.

Superintendent-Presently employed as General Supt. & Vice President of Asphalt Paving Co. Desires change—Best of references —30 years experience on Highway & Airbase Construction—Both Foreign & U. S. Will relocate—Resume on request. PW-4851, Engineering News-Record.

Construction or Office Project Engineer, Boston or South, BSCE, 39, Industrial Plants, Heavy Piping, oil facilities, Earthwork, docks, pumping control systems. Send for resume. PW-4876, Engineering News-Record.

Civil Engr., Reg., M.ASCE, BSCE (1950) plus graduate credit, flexible, business sense. Well rounded experience including responsible charge for structural design of industrial buildings, atomic energy facilities, and specifications for missile installations. Desire responsible position. PW-4862, Engineering News-Record.

Young, aggressive Hwy. Engineer. Experience in all phases of Highway Design particularly in current Fed. Interstate System. Complete resume sent upon request. PW-4882, Engineering News-Record.

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The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

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OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.
Write today, giving full details.
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Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.
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FOR RENT
MODEL 955 P&H CRANE
Magnetorque controls. Just overhauled with new motor. Carries 2½ yard bucket with 100 ft. boom.
SAGINAW ROCK PRODUCTS COMPANY
SAGINAW, MICH.

2 SEA WATER DISTILLATION PLANTS
With 1 yrs. Supply of Spare Parts
1—500 Ton Capacity per day.
1—270 Ton Capacity per day.
Only operated for 1 year.
Original value $600,000.
To be sold at approx. 60% cost.
FS-4798, Engineering News Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

BUSINESS OPPORTUNITY

General contracting corporation with $100,-000.00 loss for tax credit available. Write Contractors P. O. Box 5108, Richmond, Virginia.

FORSYTHE EQUIPMENT CO., INC.

MANITOWOC SPEEDCRANES

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Capacities to 70 Tons
Booms to 140 ft. and 30 ft. jibs
Special rates on long rentals

Exeter 2-6125 37-11 Vernon Blvd.
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Excellent Condition

Model MC-424 Lorain Truck Crane

on Standard 6 x 4 Moto-Crane Carrier

Located West Coast

FRAZIER-DAVIS CONSTRUCTION COMPANY
1319 MACKLIND AVENUE
St. Louis 10, Missouri
STerling 1-1950

FOR SALE OR LEASE

70 All Steel

TWIN HOPPER CARS

60 Ton Capacity

Fully Repaired
Immediate Shipment

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1) **Brand new S-18 Euclid, 21 cu. yd., scraper, latest type with 27:00X33-24 ply tubeless tires, factory price $57,385. Our dealer net cost, F.O.B. Chicago, $47,650**

1) **Brand new Model 1UD-R10 Euclid rear dump truck with standard 70BY quarry body, two yard top extensions, heater, defroster, hood sides, price F.O.B. factory $22,933. Dealer cost F.O.B. Chicago, $18,405**

We have been the Euclid dealers in Chicago and have just cancelled our Euclid franchise and have these two new machines left in stock, which we are offering at dealer's cost, F.O.B. Chicago, Illinois

We also have the following rebuilt equipment in stock, available for immediate sale:

5) Euclid 13 yd. bottom dumps

4) Euclid 6 wheeler 14TDT rubber tired 15.5 cu.yd. scrapers

5) Rebuilt TS-24 Euclid twin engine rubber tired scrapers

1) Mod. TC-12 Euclid crawler tractor with dozer, used 5 months, rebuilt

1) Mod. TC-12 Euclid twin engine crawler tractor with pushblade, rebuilt

2) Rebuilt TS-24 Euclid twin engine, rubber tired scrapers, used five months, located in Memphis.

GIL BOERS EQUIPMENT COMPANY

7625 SO. KEDZIE AVENUE,
CHICAGO 52, ILL.
PROSPECT 6-4000

FOR SALE OR RENT

2½ YD. LINK-BELT K-595 CRANE. 140' BM.
35/40 TON INDUSTRIAL BROWNHOIST #8 DIESEL LOCO. CRANE. NEW 1951.
40/50 TON AMERICAN #508 DIESEL LOCO. CRANE. NEW 1942.
25 TON IND. BH. #5 DIESEL LOCO. CRANE.
50 TON AMERICAN STIFFLEG DERRICK AND 3 DRUM AMERICAN HOIST.
45 TON GEN. ELEC. DIESEL ELEC. LOCOS.
25 TON GEN. ELEC. DIESEL ELEC. LOCO.
1 YD. LORAIN L-50 CRANE. NEW 1951.

WHISLER EQUIPMENT CO.
1905 Railway Exchange Bldg., St. Louis 1, Mo.
CHestnut 1-4474

FOR SALE

Used in Good Condition

Telescopic 6'x6' Arch Tunnel Forms 16 sections—5' long including Portable track, 20' traveler, concrete buckets, etc.

PRICE: $3,000 F. O. B. Portville, New York

BENSON-STEAD CO.
P. O. Box Portville, N. Y.

FOR SALE

(1) 20 Batch Boards for 6 Wheel Trucks —Fit Std. 10 C.Y. Body.
(2) Rooter Letourneau Keorooter on Rubber
(3) Lima Compactor—Mo. C.
(4) HiLo Pavement Detector — Vicking Manufacturing Soil Test. Mo. CT-85

WILLIAM J. ORR, WILLIAM C. ORR,
DONALD J. ORR

ORR CONSTRUCTION COMPANY
27 EAST NINETEENTH PLACE
CHICAGO HEIGHTS, ILLINOIS
TELEPHONE SKYLINE 5-9090

HEAVY EXCAVATION EQUIPMENT

DRAGLINES, SHOVELS, CRANES, DRILLS, TRUCKS

15-W B.E. Elec. Drag, 215', 12 yd.
450-W B.E. Diesel Drag, 165' w/extra 10, 12, 13 & 14 yd. buckets.
9-W B.E. Elec. Drag, 165', 10 yd.
9-W B.E. Diesel Drag, 165' 12 yd.
7-W B.E. Diesel Drag, 140', 7 yd.
7400 Marion Diesel Drag, 175' 13 yd.
7400 Marion Elec. Drag, 175', 12 yd.
1855 P&H Diesel Drag, 130', 10 yd.
625 Page Diesel Drag, 160', 9 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W B.E. Diesel Drag, 125', 6 yd.
2400 Lima Elec. Drag, 130', 6 yd.
2400 Lima Diesel Drag, 130', 6 yd.
4500 Manitowoc Drag, 120', 5 yd.
120-B B.E. Elec. Drag, 115', 5 yd.
71-B B.E. Crane with 160' boom
3900, 3500 & 3000 Manitowoc Cranes
111-M Marion Drag, 100', 4 yd.
1055 P&H Diesel Drag, 80', 4 yd.
1601 Lima 4 yd. Shovel/Drag
1201 Lima Drag, 85', 3 yd.
54-B B.E. Drag, 85', 2½ yd.
5560 Marion 26 yd. Elec. Shovel
190-B B.E. 8 yd. Elec. Shovel
151-M Marion 7 yd. Elec. Shovel
1600 P&H 6 yd. Elec. Shovels
170-B B.E. 6 yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
2400 Lima 6 yd. Std. & H.L. Shovels
120-B B.E. 4 yd. Elec. Shovel
1055 P&H 3 yd. H.L. Shovel
111-M Marion Std. & H.L. Shovels
1201 Lima & 54-B B.E. Standard Shovels
#6 Northwest 1½ yd. Standard Shovel
Model T-650 REICHdrill Truck Mtd. Rotary & Down-The-Hole
Ingersoll-Rand Truck Mtd. & Crawler Mtd. Drillmasters
Keystone #50 Truck Mtd. Stardrill
Euclid Trucks, Rr. & Bottom Dump; Dozers, etc.

FRANK SWABB EQUIPMENT CO., INC.
313 Hazelton Nat'l Bank Bldg.
Hazelton, Pa. GLadstone 5-3658

MOBILE CRANES

FOR SALE

Self-Propelled, One-Man Operated

COLES-CRANE, 8-top cap, 1952, 360 revolving boom, finger-tip control, pneu. tires. Located: Chicago $9,500

AUSTIN WESTERN CRANE, 5-ton cap at 10' radius, pneu. tires, 360 revolving hydraulic boom, 1956. Located: Penn. $10,500

KRANE KARS, 10-ton cap, 12'-18' telescopic boom, revolves 180; pneu. tires. Rebuilt. Located: N.Y.C. $8,500

KRANE KAR, 5-ton cap 12'-18' revolving telescopic boom, pneu. tires. Located: NYC. $5,500

KRANE KAR, 2½-ton cap, 12'-18' revolving boom, pneu. tires. Located: NYC. $3,500

A & A MACHINERY
1845 Bay Road, Miami Beach, Florida
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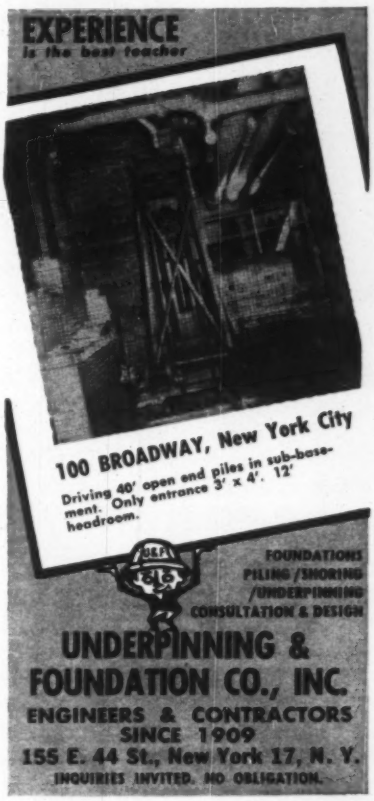

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Educating Civil Engineers

IN A HOPEFUL PREDICTION on this page in ENR's June 2 issue a coming conference on civil engineering education was heralded as one that "might shape the future of the profession." The conference has come and gone; its effect on the future of the profession is yet to be determined.

Civil engineering educators representing every accredited school in the country met at the University of Michigan as planned. They spent two days hearing described and discussed the implications of a proposal to make civil engineering a five-year course of study (ENR July 7, p. 21). But they went back home to think more about it before declaring themselves for or against the general idea (ENR July 14, p. 32).

Shifting the first civil engineering degree from the fourth to the end of the fifth year of study has much to recommend it, and the leading educators and a few non-educators who proposed it deserve high praise for clear and progressive thinking on a complex and important problem. Why the conferees could not bring themselves to a decision on it at Ann Arbor is hard to say.

Many factors, no doubt, were involved. Some conferees came without having done their homework; they seemed uninformed on the theme of the conference, its background and objectives—although all such information had been available to them for weeks. Some seemed to regard the meeting as a get-together or a convention instead of a working conference to which they had been brought to contribute their thinking and to express their opinions. Some actually left before the final voting sessions.

The planning committee itself—less than completely satisfied with the results of the conference—may have unwittingly shaped the outcome. In scheduling lengthy papers and discussions on more of the detailed implications of their proposal than were significant, it cut down the available discussion time, while possibly raising more questions in the minds of the listeners than were answered. And in an apparent attempt to avoid the charge of railroading, the conference planners gave their proposal too soft a sell, left the conference to flounder at times for lack of strong direction.

There were pleas for action: "Change is inevitable . . . proposals must not lie dormant." But there were also calls for more time, further study. And the latter prevailed. However, failure to meet the immediate objective—bringing forth a specific recommendation from the conference—does not mean that the educators have wasted their time or the National Science Foundation's money. Not yet, at any rate.

The resolutions of the conference will be voted upon by mail; that was decided. Time for their consideration should be ample, but it also must be limited. The 150 or so conferees eligible to vote on the planning group's proposed guide to future CE teaching must be brought to take a position on this significant proposal as soon as possible lest it drop with a dull thud and be forgotten.

One of the speakers in Ann Arbor said it is unlikely that engineering teachers will take the initiative in curricula changes to upgrade civil engineers, that pressure must come from the profession through the American Society of Civil Engineers. Actually, this pressure was applied by ASCE in its Education Task Committee report in 1957. The educators were passed the ball, then after a substantial gain they bobbled the ball a bit in Ann Arbor. But it is still hopefully assumed they'll retain possession long enough to score.

More Research for Highways

FEW WILL ARGUE that intensified highway research is unnecessary or unwise. After all, such expenditures currently amount to no more than one-fifth of 1% of the money spent on highway construction, maintenance and operation. Measured in this way, research efforts might be regarded as woefully inadequate.

It is, therefore, to be hoped that the decision of AASHO's executive committee (ENR July 7, p. 22) to defer action on recommendations by a special committee of the Highway Research Board for a stepped-up program (ENR June 23, p. 129) means only a temporary delay.

In line with tradition, a big chunk of any additional expenditures would go for physical research—including a recommended $5 million for translating results of the AASHO road test and a whopping $10 million for soil and aggregate studies.

Important as physical research may be, however, it is in the non-physical areas that needs are the greatest, as evidenced by the wide gap between our present knowledge and real understanding of the traffic stream and its behavior; the emotional and psychological factors that influence motorists; and the real impact of highway transportation on our society.

It is gratifying that the HRB committee recognized the importance of investigations of traffic behavior, causes of accidents, driver behavior, and highway benefits to both users and non-users. Probably the only just criticism is that the committee did not go far enough; research efforts in these fields could well be three or four times the sums indicated.

Refreshingly, the committee seemed to recognize the existence of forms of transportation other than highways. This was done by the suggestion that $1 million be spent in a comprehensive study of passenger transportation in metropolitan areas.

Intensified highway research is needed. AASHO should adopt the committee's proposals, and suitable agencies, both public and private, should move promptly to implement the recommended program.

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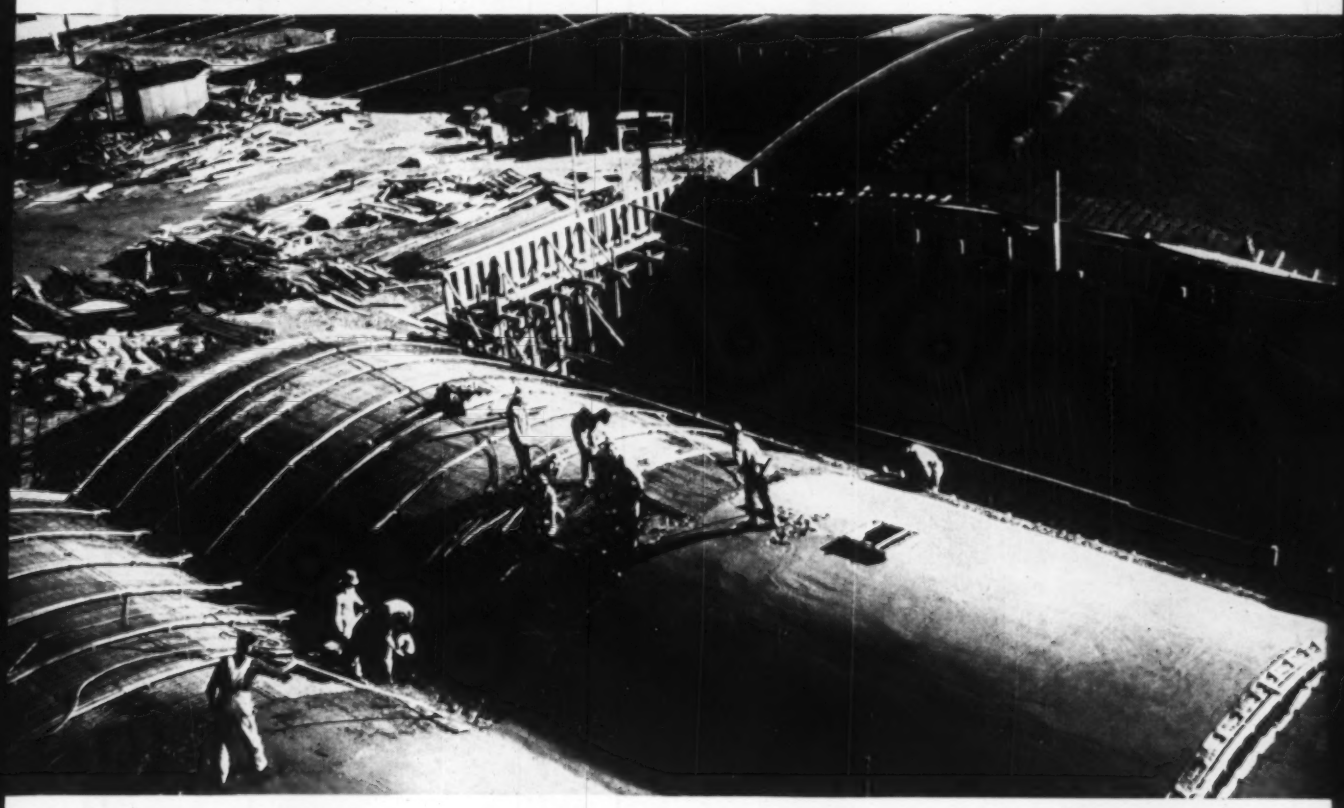

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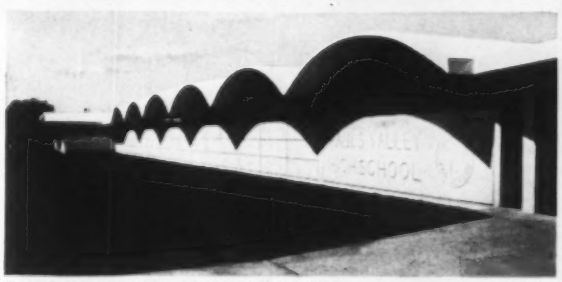

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